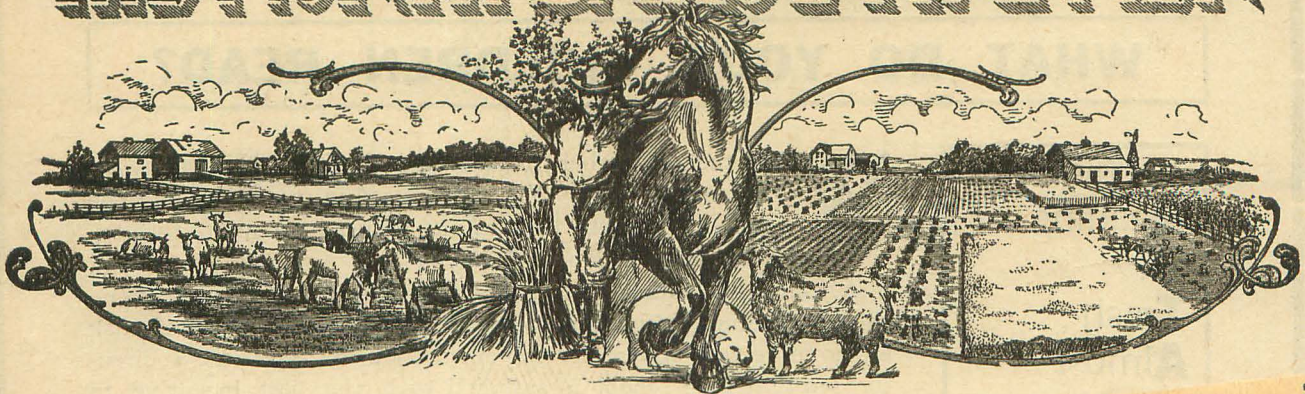


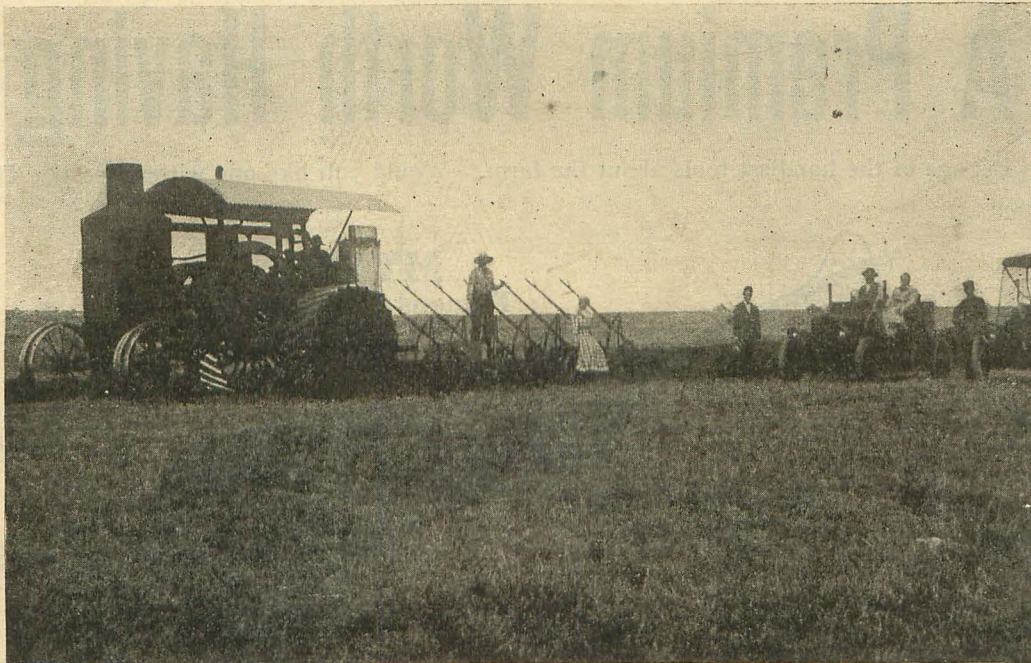
THE NORTH DAKOTA FARMER



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Vol. 12 · No. 3 Lisbon, North Dakota, September 15, 1910 50 Cents A Year

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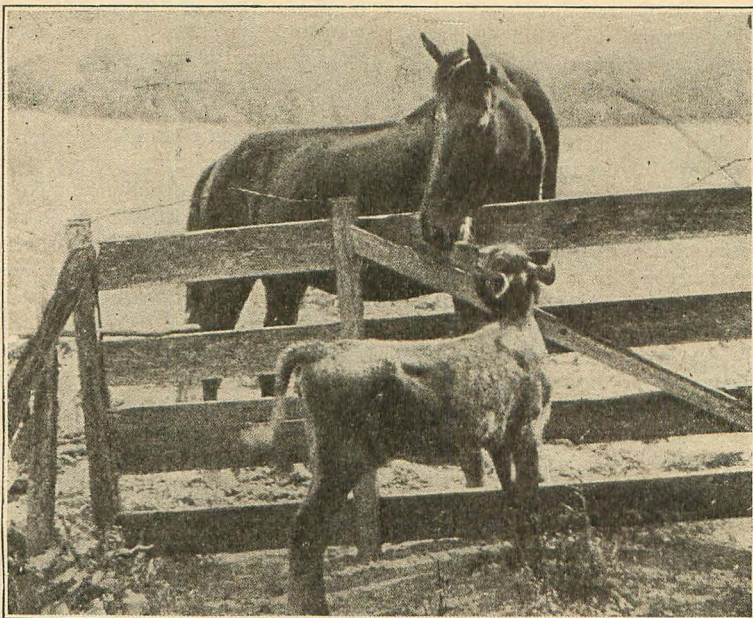
THE NORTH DAKOTA FARMER

Vol. 12, No. 3

LISBON N. D., SEPTEMBER 15, 1910

50 Cents a Year

"If we could only talk, we might give some good advice."



"The exclusive wheat farmer and the exclusive flax farmer will disappear * * while dairying and diversified crops will become the rule."

Agricultural Improvement

By J. H. Worst, Agricultural College

The next few years will note tremendous changes in the agricultural development of North Dakota. And that development will not be simply the settling up of vacant lands or the exchange of acreage by speculators and non-residents at the behest of real estate men. Exploitation has about run its course and the day of substantial, scientific farming is at hand. The exclusive wheat farmer and the exclusive flax farmer will disappear, and the state can well afford to welcome their going, while dairying and diversified crops will become the rule.

The drought of 1910 will long be remembered, and while suffering, or at least inconvenience, will result in hundreds of households, yet the salutary tho expensive lessons that exploitive farming always teach will, in the end,

work for good. The voice of the prophet is seldom heard, certainly is seldom heeded until those to whom the message is directed receive a jolt that awakens them.

North Dakota differs but little from other states and countries which erstwhile exploited their natural resources and then by a long, painful, and expensive process, settled down to a sensible system of farming.

But first they had to build up what they had torn down, to restore what they had wasted, which made it painful and expensive. Happily, we are only on the verge of that evil condition which will, with every recurring intermission of seasonable precipitation, yield blasted fields instead of profitable crops. We can even yet, without sacrifice, mend our

ways and adopt a sensible system of crop rotation that will not only distribute the work more equally thruout the year but almost entirely eliminate the evil effects of ordinary drought.

Who can be sanely optimistic in a rich agricultural state where the ordinary agricultural practice in vogue can lead to but one result,—soil disease and soil exhaustion? And what else can result where the farmer takes constantly and gives back nothing? Is it any wonder that outraged Nature takes every opportunity to retaliate?

Nature always gives more than she demands, but when the children of the soil continue to rob her, to take constantly and give nothing, then the very changes wrought in the soil by the greedy practice of single cropping demand more water at critical times for the growing crops than the clouds give down, with the result—blasted fields. The land thus gets a rest and the farmers get a lesson. Will they heed it?

The country demands deeper and more reasonable plowing, more frequent cultivation, better and cleaner seed grain, the elimination of weeds, systematic rotation of crops which shall include both cultivated and leguminous crops, manure at regular intervals and plenty of livestock to consume the roughage and rough grains and to furnish manure for the fields. Such rotation will eliminate many of the causes that lead to crop disaster, such as fungus diseases, weeds, and soil exhaustion.

The time is near at hand when the world will demand more wheat, more wool, and more meat. This increased demand for food should double the value of our farms, and it will when the science of farming is practiced and sane business farm management is followed. The business and industrial world can point to no surer road to prosperity than our North Dakota farms offer to the young men who desire a sure thing, such as a moderate fortune, and are willing to master the principles that underly agriculture and put them into practice.

Bureau of Information Upon Flax Seed and Flax Products

To the Flax Growers of the Northwest, and of North Dakota in Particular

By Henry L. Bolley

The importance of the flax crop to the northwest is one worthy of your closest consideration. Statistics of the crop indicate that it is gradually losing ground in the northwest in the same sense as it has done in every other state in the union. The northwest, and particularly North Dakota, can ill afford to lose so important a crop from their short list of available crops for general farming. The records of this crop show that it has been one of the great money makers of North Dakota and previously did equally well for Minnesota and other older states.

I have become convinced thru my studies that it is not necessary that the flax seed crop should be lost to the northwest, and shall try to help the farmers save the crop much in the same sense as the wheat crop has been saved from the ravages of loose smut, and the potato crop from its various enemies. North Dakota alone has annually produced approximately half of the flax seed crop of the United States, and considering the ruling prices for the seed the importance of the crop is plainly evident. At this time I can only say that the flax crop is not destructive to the fertility of the soil, and that with proper handling the new soils of the northwest need not be infected with the diseases which have driven the crop out of the soils in the older regions, and that with proper handling the crop can be placed into profitable growth upon the older lands where the diseases now exist. This can only be done by a careful consideration of the methods of planting, by the selecting of pure, clean seed, by disinfecting the seed before sowing it, and by conducting proper rotations to keep the soil free from the growth of the flax root fungi which may chance to reach it. The importance of the question of pure seed and of keeping the soil free from the persistent parasites which destroy the crop is so great that if overlooked the crop must certainly eventually be lost in any particular neighborhood. If a farmer fails to treat his wheat for the prevention of smut, he may have to sell it as rejected wheat, but he has not injured his land. If he fails to treat his flax seed for the prevention of the root diseases he not only eventually loses his crop, but injures his land for the growth of flax thereafter. Furthermore, he places the lands of his neigh-

bors in jeopardy, as the parasites which rot off the roots of the flax plant and cause wilt live in the soil for a number of years.

The Department of Botany, of the North Dakota Experiment Station, proposes to aid all persons interested in procuring clean seed for sowing purposes by keeping up a Bureau of Information. We hope to be able to furnish weekly to anybody who so desires a list of seedsmen and farmers who can furnish flax seed which is fit for sowing purposes, and further upon request will supply information to any farmer who expects to sow flax as to just how to go to work in order to disinfect the seed and prepare the seed bed. If you are a flax grower and wish to become a part of this pure seed and pure soil organization, send in your name and address and tell us whether you want seed or whether you have seed to sell. If possible we will inspect your crop as it stands in the field. Otherwise you can send us samples or we will inspect it in the bin.

Any person who wishes to buy clean seed may thus have opportunity to feel reasonably sure that he is not going to run so much risk spoiling his land for flax culture as in the past. This Bureau of Information will be open to every citizen of the state and of the northwest. Send in your name and help us boost the flax crop to at least double its present yield of seed. Remember, if the seed crop is lost that the future possibilities of the fiber industry are practically lost. If this industry is lost everybody will pay more for oil, for paint and for other products. We especially want to meet the man who has a pure variety of flax seed or hopes to grow it.

THE RAISING OF FLAX

Prof. Bolley, thru his studies with the flax crop during a period of approximately twenty years, has reached results in his work which assure him that there is no reason why the crop should be lost to the farmers of the northwest.

At the same time he has reached as definitely a conclusion that the crop will be lost unless the growers of flax seed in each and every community can be brought to understand that this crop is attacked by persistent root diseases, parasitic fungi which remain year after

year in the soil. The farmers must learn that it is absolutely essential to follow proper methods of seed treatment, and proper methods of handling the soil in order to keep the ground in a healthy condition for this crop.

For this reason Prof. Bolley has decided to undertake a campaign of education regarding flax and its products and culture, and especially regarding the methods of handling the seed and the soil, which shall be very much more definite in its attempt to reach the farmer directly than has heretofore been done. He feels that the flax crop and all its allied industries are essentially at stake in the northwest.

The fact that the crop is especially light this year, in North Dakota and the northwestern states, because of the excessive drouth, makes this work all the more difficult and all the more important.

Any farmer who wishes information regarding flax, or any farmer who has this year grown a good grade of any one of the pure breeds of flax, should put themselves in communication with Prof. Bolley. If any peculiar disease or difficulties in the growth of the crop have been noticed, specimens and information regarding the same should be mailed to him at once, and the matter will receive careful attention.

Before the crop is harvested this season Prof. Bolley and his assistants expect to visit most of the important flax growing areas of North Dakota, and in case of a crop being attacked by any special diseases, he will either visit the farm in person or send a young man who is proficient in the work.

Prof. Bolley especially hopes to hear at once from any farmers who think they have a crop which will furnish good seed for the coming year. Communications addressed to H. L. Bolley, Agricultural College, N. D., will receive prompt attention.

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"It is Not a Difficult Matter to Grow Alfalfa Successfully in Most Parts of North Dakota"

How to Grow Alfalfa

By J. C. McDowell, Assistant Agriculturist, U. S.
Department of Agriculture, Waukesha, Wis.

It is not a difficult matter to grow alfalfa successfully in most parts of North Dakota, but unless careful attention is given to a few details the danger of failure is greatly increased. The purpose of this article is to point out a few of the things that should be done in order to insure success.

As alfalfa is a crop that is likely to give satisfactory returns for many years without re-seeding, it is always advisable to prepare the seed bed as well as possible. When the seed is to be sown in the spring, the land should be heavily manured and plowed deep the previous fall. Spring plowing often gives good results, but alfalfa prefers a firm seed bed. If the plowing is done in the spring, some means should be taken to firm the seed bed before sowing. Whether the plowing is to be done in the fall or spring, and no matter at what time the seed is to be sown, the land should always be heavily manured. The purpose in manuring, is not so much to enrich the soil for the alfalfa as it is to furnish a medium in which the alfalfa bacteria develop rapidly. In this way the manure greatly assists in inoculating the alfalfa. If the manure is well incorporated in the soil, it will add

much to its water holding capacity, and as alfalfa is a great lover of moisture, the moisture of the soil humus often insures heavy yields where there would otherwise be failure.

In most sections of the states east of the Mississippi River the soil needs lime, but this is not generally true of the soils of the Dakotas. As yet our soils are not often acid, but it can do no harm to have them tested for acidity and make sure they do not require liming. If lime is to be used it is best to apply it in the fall unless it is in the form of ground limestone rock, in which case it may be applied at any time. Where lime is needed at all it is usually advisable to use from one to two tons per acre, and to harrow it in on the plowed surface.

As early in the spring as it will do to work the land, the surface should be stirred with a disk harrow so as to form a mulch to conserve moisture. A second harrowing with the disk should take place as soon as the weeds have made a fair start. This will be about the time the farmer has finished sowing his grain. Now is the ideal time to sow alfalfa in any ordinary year. While alfalfa may be sown with success at almost any period from the time the snow goes off

in the spring until the first of September, providing moisture conditions are right, there is no better time to sow it than just after finishing the seeding of the spring grain crops.

A light nurse crop of barley may do no harm in wet seasons, but alfalfa is more certain to be successful when sown alone. If barley is to be sown as a nurse crop, it should be sown at the rate of not more than three pecks to one bushel per acre, and if the season is dry the barley should be cut for hay.

To determine whether or not alfalfa in the Dakotas needs to be inoculated, I have examined dozens of fields, and have found all of them inoculated in whole or in part; but I would strongly advise inoculating all soil on which alfalfa has never been grown. The best way to inoculate is to get soil from an old alfalfa field that is well inoculated, and apply it at the rate of from three to five hundred pounds per acre. If no alfalfa soil is to be found in the neighborhood, inoculating material may be procured from the United States Department of Agriculture. Directions for using accompany each package. The field should be inoculated the same day the seed is sown, and it is best to inoculate late in the day as the heat of the noon day sun may kill many of the bacteria. The soil used in inoculating should be harrowed in with the alfalfa seed.

Probably the best amount of seed to sow per acre is twenty pounds, but it is well to test the seed to make sure that it

will nearly all germinate. Some advocate the sowing of thirty pounds of seed per acre, but if the soil is well prepared twenty pounds should give a good stand.

It may be necessary to clip the alfalfa back once or twice during the season, and occasionally the growth may be heavy enough to warrant the taking of a hay crop the first year. Care should be taken not to allow the plants to reach too close to maturity before clipping back. On the other hand, alfalfa should not be clipped back until about the time the new shoots have made a fair start. These points concerning the time to clip alfalfa should be kept in mind the following year when taking the hay crops.

There is still much to be learned about alfalfa growing, but I hope the points given above may be of some use to the readers of the North Dakota Farmer. I see no reason why alfalfa should not become a successful crop in every county in this state, and I wish I could talk about its advantages with every farmer in both the Dakotas.

IN THE NORTH COUNTRY

W. C. Palmer, North Dakota A. C.

The Experimental Farm at Indian Head, Sask. is an eye opener to the one making his first visit. The rainfall is but eleven and one-half inches, the winter quite severe and being prairie the winds blow considerably.

On approaching the farm all one sees is what appears to be a wood, the outside trees are yellow and rather stunted. The succeeding rows are higher and of a darker green. It seems that the first row has had to take the brunt of the wind and the following ones as they have had added protection have grown taller and sturdier, while clear inside the windbreak, the trees are very thrifty and are making a splendid growth. The road leads down an alley of trees that wind round to the house which is set in a dense grove of elm, ash, box-elder, white spruce, Scotch pine, caragana and numerous shrubs, a mass and density that reminds one of an English park. The first person I met was Mr. Angus McKay, the superintendent, and it needed no introduction to make one aware of the fact that it was the superintendent. When I spoke of having heard so much of him and his work he seemed rather embarrassed. When I stated that I had come to learn of the work he invited me to take a seat in the buggy as he was on his way to one of the far fields.

As we rode along, I learned in response to my questions, that Mr. McKay came to Indian Head and started farming. When the Experimental Farm was started in '87, he was chosen superintendent. The farm which comprises 680 acres was then a part of the 60,000-

acre Bell Farm and was all in wheat in 1887 which was the fifth crop raised on this land. As the soil drifted one of the first steps was to plant trees. The ground was prepared in '88 and trees from the states and from eastern Canada were planted in '89 but these trees died. In 1891 seeds of ash, and box-elder were gathered and planted and the seedlings set out when a year old. These have done well. The farm was divided into fields varying from 20 to 100 acres and a row of box-elders planted on each side of the roads that separated the field, in some cases several rows were planted on each side of the road as well as on the outside border of the farm. These trees have now grown so large that in many cases, they form a closed arch over the road. There are now thirteen miles of such roadway.

In 1893 seeds of elm were gathered and planted and some beautiful rows of elms along the highway is the result.

This planting of trees has stopped the drifting of the soil and it is quite noticeable that the crops are the best near the wind-break. Mr. McKay stated that the wind-break affected the crop to a distance of eight feet for each foot in height so that a thirty foot wind-break would help the crops to a distance of 240 feet or a little over fourteen rods.

The grain was practically all cut August 22 and the shocks indicated a good yield in spite of the fact that it had been unusually dry. In fact up to date, they have had less than half of the usual rainfall. Wheat on summer fallow will average 35 to 40 bushels, oats 80 to 100, barley 50 to 65, and the quality of the finest. Earliness is an important thing in crops and considerable work is being done in securing early maturing varieties. Marquis is one of these early wheats. It is a hybrid, bred by Saunders of the Ottawa Experiment Station. It is a week earlier than the common red life and it also gives promise to yield better. Banner oats have given the best yield, averaging a yield of 95 bushels for five years. Corn is also grown. It makes a big growth and it is put into the silo. They have two silos that they have used for a good many years and are this year year building a third one.

When questioned as to the best farm practice, he stated that he was working on several rotations as follows: 9-year rotation, starting with fallow or breaking; 2nd-year, roots or corn; 3rd, wheat; 4th, oats, 5th, fallow; 6th, wheat; 7th, oats seeded to alfalfa and rye-grass; 8th, hay; 9th, pasture.

*Eight-year rotation starting with fallow or breaking; 2nd yr. wheat; 3rd, wheat; 4th, fallow; 5th, roots or corn; 6th, barley seeded to alfalfa or rye-grass; 7th, hay; 8th, pasture.

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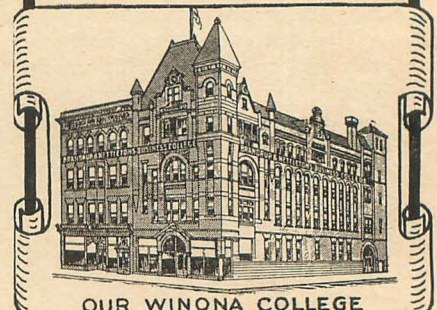
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Three-year rotation summer fallow or breaking: 2nd year, wheat, 3rd wheat.

He stated that it did not pay to grow over two crops of grain in succession. The summer fallow both saved up moisture and killed weeds. With the small rainfall the saving of moisture is very necessary. Alfalfa is doing exceptionally well. This year the first cutting was over two tons. The second a little less than a ton. The second cutting is usually as good as the first, the very dry season, however, cut it down. In starting alfalfa he sows it on summer fallow in May and cuts it back twice. After August 10th he lets it grow up to form a protection to carry it thru the winter. The Turkestan has proved the hardiest and Grimm comes next.

When starting on new land he advises inoculating the soil. The government in order to encourage the growing of alfalfa, is offering prizes for the best ten acres in 1914. The province has been divided in four sections and in each the following prizes are being offered.

First Prize.....	\$500
Second Prize.....	400
Third Prize.....	300
Fourth Prize.....	200
Fifth Prize.....	100
Sixth Prize.....	75
And a \$200 gold cup sweep-stakes.	

Mr. McKay states that as a result a great many letters are coming in from the farmers who are preparing to compete for these prizes.

Rye-grass is being grown in place of bromus which it has been hard to kill out and especially in a dry year and it is almost impossible to kill it around trees. Clover has not done well and when alfalfa does so well there is not so much need of it.

There were also beautiful flower beds, fine vegetables, small fruits, plums, and apples growing and doing well and all without any watering. The frost this spring had killed the fruit but as a rule they get small fruit and apples and plums. It is a wonderful demonstration of what can be done with eleven and one-half inches of rainfall when intelligence and persistence work together and the government is certainly to be congratulated upon having secured the services of Mr. McKay who has brought about this wonderful transformation on a prairie wheat field and turned this into as homelike a place as can be found anywhere.

One of the most long-headed moves made by the Canadian Government is the cooperating with the settlers in

Well Drilling Machinery



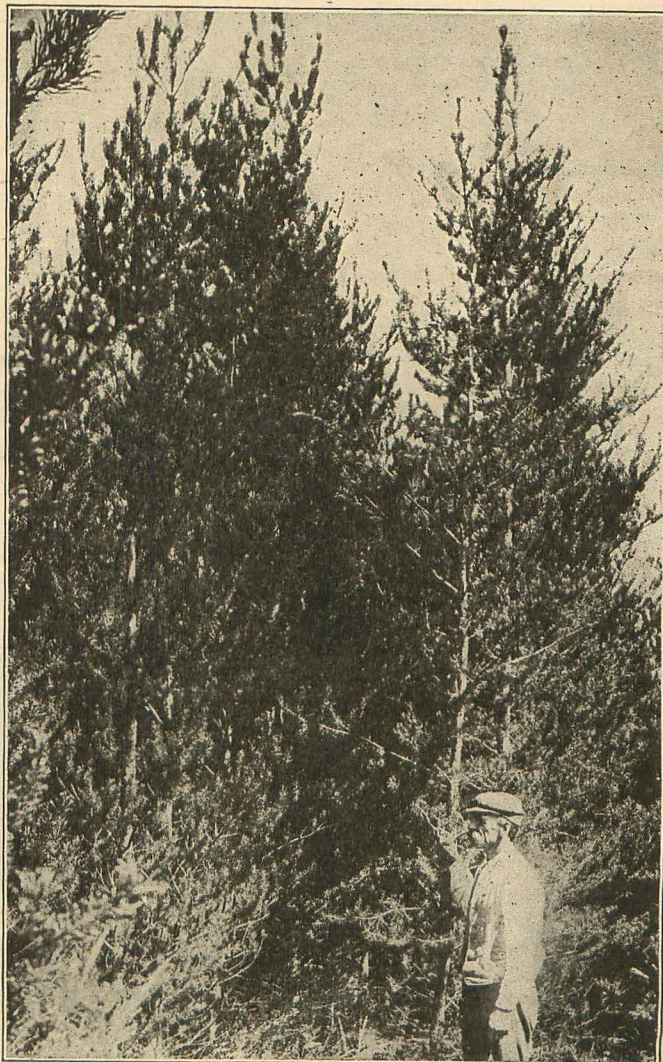
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JACK PINE PLANTATION

(*Pinus divaricata*)

This photo shows part of the experimental plantation designed and established by B. E. Fernow when chief of the Forestry Division, U. S. Department of Agriculture. Many different species were planted, but Jack Pine did best of all.



This plantation is on very sandy land, where the sand drifts when sod is broken. The plants, when set, were seedlings about ten inches high. They were supplied by

H. B. AYERS, of Kimberly, Minn.,

who now has a nursery devoted exclusively to the propagation of Jack Pine for prairie planting.

planting trees. The plan is as follows:

The farmer who wants to plant trees writes to the tree-planting division at Indian Head, Saskatchewan. An application blank is sent out. When this comes back properly signed, the man's name is put on the list and an inspector is sent out to examine the place to see if the land is properly prepared and in the right location, if not trees will not be sent until the ground has been properly prepared and far enough from the buildings so that snow will not lodge around them. The inspector learns all the facts as to soil, elevation, location and makes a rough sketch showing the location of building and place where it is proposed to plant the wind-break. Then during the winter a carefully drawn plan showing how the trees should be planted, indicating distance apart, kind of trees and the best combinations of them is made out and sent to the farmer so that when the trees arrive he will know exactly where to plant them so as to get the best results. The application has to be sent in a year before the trees are sent out. The trees are sent free of charge and express prepaid so that it costs the farmer nothing for the trees or for the expert advice.

Up to 1904 the trees were grown on the Brandon and Indian Head Experiment Farms but the demand increased beyond what could be supplied from these places so that in 1905 a forestry station was started at Indian Head on 160 acres of land. This has now been increased to 480 acres on which seedlings of the varieties sent are grown, principally box-elders or as they call it there, Manitoba maples, ash, elm, willow, cotton-wood, caragana, larch, white spruce, and Scotch pine. Last year three million trees were sent out and that many will be sent out in the spring. It was usual to send each farmer 1500 trees at first but the demand has now grown so that but 700 trees could be furnished last year. The rainfall at Indian Head averages eleven and one-half inches, the winds blow a good deal and the winters are severe. The forestry is located on the open prairie. Hedges of box-elder, caragana, cotton-wood, willow and sunflowers are grown to protect the trees from the wind.

To make the best use of the moisture, the trees are clean cultivated.

The growth of the trees is greater than would seem possible under such conditions and what was the wild prairie in 1904 is now a beautiful tree plantation. Some of the trees being 12 to 15 feet high. A part of this forestry plantation will be left so as to allow the trees to grow to some size in order that data may be secured as to rate of growth and amount of wood, etc., that can be secured from such a planting.

It seems almost like the work of

magic and then to have it extended to the farms of these provinces will in a way change the country. The planting of trees about a prairie home not only improves that farmstead but it adds to the community so that it is of a public as well as a private nature. Mr. Norman Rens who is in charge of the work states that more applications are now coming in than they can fill and that they have to reduce the number of trees sent to each farmer in order that more may take advantage of the opportunity.

There are now six inspectors on the road and these inspectors are experts in their line, being men who have made a success of growing trees so that they can speak from experience and give advice to the farmers from their standpoint.

This forestry is a fine example of a government enterprise that is well carried out and it is safe to say that no money is being better spent by the Dominion Government than that which goes into this tree planting project. Before the government was giving this aid, the farmers did not pay much attention to tree planting and when they did plant they often got the wrong variety, got them planted in the wrong location, did not properly prepare the ground nor know how to care for trees so that failure was often the result, and if the trees did

grow they were usually in the wrong place.

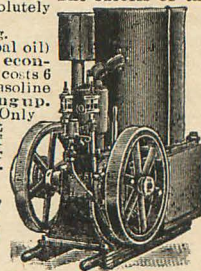
This, however, has all been changed by the present plan. Nothing can be done to improve the appearance of the country more than the planting of trees about the farm home and there is nothing that will do so much to make the farmstead on the prairie home-like.

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Tell him of your troubles; or, better still, call and take advantage of his free consultation offer. You will Bless the day you do this—do it at once; address him this way,

Dr. Clarence W. Cox
Natural Science Sanitarium
1208 Second Avenue South, FARGO, N. D.

A DREAMER DREAMS

A. E. Stoessmeister in Minot Reporter

Nearly always we are too busy to hear, see, taste, smell or feel anything that is going on about us, but, when the times are out of joint, and we have not enough business to keep us warm, even the dreamer is allowed to dream his beautiful dream with the hope of an occasional audience during his trance.

I have just returned from the East where the rush of business continues in supreme indifference to our supposed local crop shortage; from a land of prosperity and "step lively," I have stepped into an atmosphere deeply tinged with blue. Our troubles are largely of our own making. Last

receive a cup of coffee and find a place to rest while their husbands are receiving free instruction how to raise a good crop of wheat in a dry year. If Mr.———can raise 30 to 40 bushels of wheat on his land this year with no more rain than his neighbors had, no talk of "local conditions" can convince me that the rest of the farmers should not have something to show for their work if they had done is scientifically.

In the old days the farmer thrived on 15 to 20 bushels when he received only 50 to 60 cents per bushel; and with present prices a yield of ten bushels would mean good conditions.

Gentlemen this is the whole thing in a nutshell; you must instruct the farmers how to make the soil produce

of July we predicted that if we had an insane fourth, we would have rain. In other words if the thunder of the giant fire cracker, torpedo, cannon and bomb were hurled against the heavens precipitation would follow. Many of the young men who stood in front of a local candy store at 2 a. m. on the fourth of July last and were deluged with a cold shower because they were making night hideous, I suspect are in a measure responsible for proving this prophecy correct. They certainly made the "welkin ring" with their bombs and firecrackers, and incidentally, mixed the cold and warm and wet and dry stratas of atmosphere, upon which the rain makers always depend for the success of their experiments.

Certain it is, we had rain before the



Result of Rotating and Diversifying: Harvesting the 1910 Crop on the Farm of Ernest Billing.

fall we cussed and discussed at the Commercial club and weighed problem after problem, and totally ignored the most vital question that could possibly come before those meetings.

Yesterday I visited a farm within a few miles of Minot from which farm will be gathered this season an average of 30 bushels to the acre; and a mile from this particular farm there is a half section on which stands the entire crop in one solitary shock. When I look upon a bumper crop raised in spite of drouth and all around this bumper crop a lot of dismal failures, the thought comes to me with much force that it might be well for us to leave off discussing every blessed thing under the sun, until we have—not discussed, but established—a model experimental farm at which the settlers of the neighborhood shall be welcome; where the ladies may

dollars in a dry year; you can do it on an experimental farm that will be self-sustaining; and if you want to get rid of your skepticism, go out to Charlie———'s farm. What he can do others can do if they go about it in the same way. Half a dozen of the old settlers who have profited most by the growth of Minot ought to see that they will profit still more with a school of instruction that will turn withered grass into golden grain and chase the wrinkles off the brows of our business men. Don't consider it, gentlemen, but do it. We have considered a whole raft of things. Parks, boulevards, great white ways, etc., etc., ad infin. Relegate the whole wad of considers (including even the hand ball court, if you please), and do this thing and do it quickly.

Another dream, ergo, to-wit: Several days preceding the last Fourth

fourth was over and this country has had moisture ever since. In reading history we discover that after every battle there was rain. How different would be a universal movement to bombard the heavens (when a drouth threatens) say from Fargo to the western coast of Montana; how different such a general burning of powder would be to the puny local efforts of the rain makers, working in one little spot and even then succeeding often. For those who saw it rain before the close of the Fourth of July there is in this little dream, some food for reflection.

Money's Worth

A New Orleans news dispatch states that a federal food inspector has analyzed the contents of a can of supposed foodstuff sent to him recently by

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North Dakota Farmer, Lisbon, N. Dak.

LIST OF SELECTIONS

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- 1 Alpine Hut.....Lange
- 2 Arbutus Waltz (Merry Bells).....Vogler
- 3 Autumn Gavotte (Merry Bells).....Vogler
- 4 Beautiful Blue Danube, Waltz.....Strauss
- 5 Black Hawk, Waltz Walsh
- 6 Bluebells Polka (Merry Bells).....Vogler
- 7 Brook, The.....Spindler
- 8 Champion March (Merry Bells).....Vogler

- 9 Con Amore (With My Love).....Beaumont
- 10 Convent Bells, La Clochette.....Ludovic
- 11 Chaconne.....Durand
- 79 An Easter Emblem.....Lerman
- 80 Angels' Serenade (Transcription).....Smith
- 81 Anvil Chorus (from II Trovatore).....Verdi
- 82 Artist Life, Waltz.....Strauss
- 83 Battle of Waterloo (Transcription).....Anderson
- 84 Black Key, Polka Marzka.....Herzog
- 85 Budding Flowers.....Tobini
- 86 Bohemian Girl.....Balfe-Ketterer
- 87 Cavalleria Rusticana, Intermezzo.....Mascagni
- 88 Convent Grand March.....Nichols
- 89 Cornflower, Valse.....Coote
- 130 A Frangesa, March.....Costa
- 131 Americana, March.....Keiser
- 132 April Smiles, Waltz.....Depret
- 133 At Sundown.....Wilson
- 134 A Trip to Niagara, March.....Cornish
- 135 Buds and Blossoms (Tone Poem).....Federe
- 136 Cherry Blossoms.....Troja
- 137 Clown Pranks.....Quinn
- 138 Colonial Medley.....Fitzpatrick
- 139 College March Medley.....Hawley
- 140 College Airs.....Keiser
- 151 "Let'er Go," March.....Wood
- 155 Merry Widow Waltz.....Lehar
- 187 Waltz Dream, A.....Strauss
- 188 Afterwards.....Mullen
- 189 Anchored.....Watson
- 190 Calvary (High).....Rodney
- 191 Calvary (Medium).....Rodney
- 192 Calvary (Low).....Rodney
- 193 Come Unto Me (C. Medium).....King
- 194 Dream of Paradise (High).....Gray
- 195 Dream of Paradise (Medium).....Gray
- 196 Dream of Paradise, (Low).....Gray
- 218 Alone (G. Medium).....Fitzgibbon
- 219 Ave Maria.....Mascagni
- 220 Angel Voices Ever Near.....Roberts
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- 229 Battle Cry of Freedom.....Root
- 230 Columbia, the Gem of the Ocean.....Shaw
- 231 Does He Love Me, or Love Me Not? (C. Medium).....Sterling
- 232 Down Mobile.....Keiser
- 233 Drop In On Mother and Me.....Helf
- 234 Eat, Drink and Be Merry.....Wilson
- 235 Eddie, Eddie, Oh.....Corin
- 236 From the Toils of the Sea.....Trevelyan
- 237 Good Old Days Gone By, The.....Von Tilzer
- 238 Home, Home, Dear Home (Eb. Med.).....Trevelyan
- 239 How Can I Bear to Leave Thee.....Meiser-Kinkel
- 240 If All the Girls Were Roses.....Pratt
- 267 When First I Saw the Love-light in Your Eyes.....Wood

VOCAL

an indignant purchaser, and has found that the "canned tongue" proclaimed by the label comprised various extraneous substances not even distantly related to the tongue of a beef or other food animal. There was, it is stated, the paw of a yellow dog, with claws intact, a handful of the dog's hair, eighteen broom straws, and sundry other articles. This case is certainly paradoxical, for while suggesting a striking strain of economy in the package house, greater than regard for the appetites or the health of the purchaser, nevertheless the purchaser procured more than he paid for.

Unfortunately this novel combination did not come into the official hands in the original package. The dispatch states that inasmuch as the samples in the possession of the Government are not "official" they can not be used in criminal prosecution. This raises the question just what constitutes an official assortment of dog paws, hair and broom straws.

The corn growing contests conducted by the school children in more than twenty-five counties of the state are productive of much good. Aside from affording the young folks useful educational pastime they are solving a most important problem for their dads—whether corn can be successfully grown in North Dakota. The Agricultural College in this enterprise alone more than repays the state for the appropriations necessary for its maintenance.

ALASKA FOR STOCK RAISING

The government herd has done so well and is multiplying so rapidly on Kodiak island, which is off the southern coast of Alaska, that there is enough and to spare. The herd now numbers sixty head and it has proved beyond a doubt that grazing as an industry can be made a remarkable success in the Northland. That is why the herd was started there.

The galloways have now been residents of the government stock farm on the island for several years and almost everything that a stockman might want to know about what cattle will do under the conditions has been found out. It is demonstrated, for instance, that this hardy breed will winter in the north with little feeding or protection and thrive. From the results secured there it is believed that stock properly acclimatized will winter in any part of Alaska south of the Yukon river as well if not better than in Montana, for instance. On the southern coast, the winters are not severe but the snow is deep. As one goes inland the snow reduces to two feet and less, often not more than a

foot. Here the horses will forage thru the snow and grow fat without protection and it is probable that cattle will do almost if not as well.

In nearly all the valleys south of the Yukon and in places above it there is a heavy growth of native red-top grass. Along the coast this frequently reaches a height of six feet. Tho not as nutritious as timothy it is excellent fodder. It is regularly cured even in sections where the rain is heaviest and frequent experiments with silos have been successful.

In view of these facts and the almost unlimited market for beef in the north it is remarkable that stock-raising has not become an established industry in Alaska as farming has. The Kodiak stock is too valuable to sell for beef but it would make an ideal nucleus for regular stock farm in any one of a dozen places within easy reach of tidewater transportation. Perhaps Uncle Sam ought to advertise.

FOURTH ANNUAL NATIONAL CORN EXPOSITION

One of the very large and important features of the Fourth Annual National Corn Exposition, which is to be held January 30 to February 11, in the exhibit halls of the Ohio State Exposition grounds, will be the homecoming of former Ohio residents. Special invitations will be issued by Governor Harmon, Mayor Marshall and President Pretzman of the Chamber of Commerce, inviting former residents of the city and state back home during the big corn show.

An unusual precedent has been established by the National corn association in setting apart two days to be known as Ohio Days—Friday and Saturday, February 3 and 4. Special meetings will be held on these days under the auspices of the Ohio State Conservation Association, which Governor Harmon called together in a recent proclamation, emphasizing the importance of the National Exposition. There will also be a number of state meetings woven about the great National Show, all of which will appeal greatly to the former resident of Ohio.

The entire two weeks' program will be of such interest to the homecomers as to demand the major portion of their time, if they wish to drink down all the valuable information that will be imparted. The fact that between 25 and 30 state agricultural experiment stations and schools will be represented adds further to the magnitude of this the greatest of any National Corn Exposition that has been held.

To add further to the attractions, there will be amusements of the very

highest type, and the entertainment features will be varied daily.

Special literature concerning the homecoming is now being prepared and the people of the state are urged to apply to the National Corn Association, headquarters Dispatch Annex, Columbus, Ohio, for this matter.

Invitations will be sent broadcast thruout the United States, reaching old Ohio people in every state in the Union.

GOOD ROADS AND BETTER SCHOOLS

By Logan Waller Page, Director of Public Roads, U. S. Dep't of Agriculture

The advantages of good roads extend to every citizen, whether he live in city or country: and to every enterprise, whether it be agricultural, manufacturing, or mining. All are more or less dependent on the common highways as an avenue of the commercial transportation, and in proportion as these highways are improved so as to facilitate transportation are they benefitted thereby. These benefits have been carefully computed and estimated in dollars and cents, and so enormous have they been thus demonstrated to be that they present a convincing argument to any thinking man of the importance and necessity for road improvement.

ONE CENT BUYS A LOT

of information about the fertile Golden Valley, where the 1910 crops equal the bumper yield of last year.

Beach, the Golden Valley City of North Dakota, will have her first sale of business and residence lots on Thursday, October 6, 1910, when F. E. Near's second addition to Beach will be sold at Public Auction.

For further information, a post card will do. Address,

C. D. HARLOW, Sales Manager,
Office with Golden West Investment Co., Beach, N. D.

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But there are other elements of advantage which more urgently recommend the improvement of our roads. Advantages which deserve far more serious consideration than any financial advantages which we may gain, and which cannot be measured according to any monetary standard, but must be looked for in the elevation of our citizenship and the moral and intellectual advancement of our people.

Most of our cities and towns have good streets and driveways, which facilitate business and recreation. The people live close together, and social and friendly intercourse is easy. The schools and churches are within easy reach of all. So our urban population has ample facilities for business, for recreation, for social intercourse, and for attendance upon church and school.

It is different, however, with the two-thirds of our people who are engaged in agricultural pursuits and live away from the centers of business and population. They have not the paved streets and good roads of the cities and towns. They live apart from each other and have no roads such as afford easy and convenient means of transacting business, of social intercourse, and regular attendance upon church and school. To them will flow the maximum of benefits from improved roads. Improved roads will bring them in closer touch with the centers of progress. It will give them enlarged ideas and assist them to adopt the new methods which are so necessary for them to keep pace with the march of progress along other lines, and as they advance so will our civilization. As they advance so will our entire country, and in equal ratio.

Good roads would revolutionize our country schools. Contrast the lot of the country child on his way to school in winter with that of the city child with only a few blocks of paved streets to walk. Our country child, with satchel over shoulders and lunch basket in hand, must leave the cheerful fireside of home from half an hour to an hour before school opens in order to be there on time. The roads are wet and muddy many months of the year. The country is open and the cold winds are unmerciful in their attacks upon him. So that, by the time he reaches the school house, which is often unscientifically ventilated and poorly heated, his feet are so cold and his body so chilled that he is unfit for study or recitation most of the day, and the exposure and chilling of the body invite pneumonia and other diseases.

These conditions cause broken and irregular attendance. They create an aversion in the child for the school room instead of a pride in punctual attendance and studious advancement. Not only this, but a mother hates to see her

children trot off to school two or three miles in cold, bad weather. She fears that the injurious effects upon the body from the exposure will do greater harm than the beneficial effects upon the mind will do good. She realizes that a vigorous mind can only dwell in a healthy body, and that it would be a misdirected exercise of maternal care to force her children to school under conditions of exposure which endanger their bodily health.

In addition, improved roads would make possible a new system of central schools, which would insure better schools at less cost. Some scheme could be devised for carrying the children to and from school, which would be impossible over our present bad roads and with the small and badly located schools in most country communities. It would be possible under such a system for one school centrally located to receive all of the children within a radius of from four to five miles. This would make it possible to establish graded schools in all of the rural districts. Large and commodious buildings could be provided, more competent teachers could be employed, and all the modern facilities for teaching supplied at a minimum cost. This would reduce the tax levy upon the patrons, provide a better school for the children, and elevate the moral and social tone of the community.

This is being done now in some of our states that have improved their roads. Indiana and Ohio have each improved about one-third of their roads, and in these states the schools are being consolidated. The small schoolhouse of one room is being replaced by a central schoolhouse of half a dozen rooms and as many teachers. Wagons are sent out every morning to gather the children up and take them to school and to take them home every evening. All the children within a radius of several miles are thus taken to one school. It is found to cost less proportionately to build and equip one large central schoolhouse than it does to build and equip several smaller ones. Libraries and reading rooms are provided for these schools, lecture courses are easily arranged, and the children being brought together in such large numbers are properly graded; class spirit is engendered, and greater pride and love for the school room fostered.

The importance of improving our roads is so great that it demands the most serious consideration of every one. It should command our immediate and persistent efforts. Both old and young have an interest in it. They should all be educated to a realization of its importance and bearing on their welfare; the old ones so they may begin the work of improvement, and the young ones so

they will be prepared and willing to take up the work begun and carry it forward to a high degree of perfection.

If our rural population can be brought to a realization of this, the prevailing tendency to flock from the farm to the city will cease. They will immediately begin to agitate the question of improved roads and to build them. As the roads are improved the rural districts will become more attractive, the farmers will continue to farm and to do so more intelligently, the congested population of the cities will begin to flow from their alleys to the healthy atmosphere of the farm and become producers instead of idle consumers, and our country will march forward to greater industrial attainments and a higher and nobler civilization.

WINTER WHEAT IN NORTH DAKOTA

Supt. W. R. Porter A. C.

A year ago turkey red winter wheat was sown on seven of the demonstration farms located at Flaxton, Rugby, Page, Washburn, New Salem, Bismarck and Beach. On all of these farms except at New Salem the winter wheat was sown broadcast in growing corn and was afterwards cultivated in. On all the farms except Washburn, the wheat was seeded in stubble after the small grain crop was removed. On several of the farms the winter wheat was also seeded on summer fallow.

At Flaxton the wheat was seeded in the three ways, namely, in corn, in stubble and on summer fallow. Last fall this point was without rain and at the time of seeding the soil was very dry, consequently the winter wheat did not germinate last fall in either the corn or stubble land. On the summer fallow it germinated fairly well but winter killed. The winter wheat at this point was a failure in the corn and summer fallow owing to the extreme drought last fall.

At Rugby the wheat was seeded in the same manner and at the same time as at Flaxton. A light shower caused about half of the wheat to germinate in the corn and in the stubble. This made a good growth during the fall. On the summer fallow the winter wheat made an excellent growth last fall. It went into the winter in good condition. In the spring it was found to be all dead very probably due to the very unseasonably weather. About half of what wheat germinated in the corn winter killed so that what germinated would not make a profitable crop, consequently, it was disced and seeded to spring wheat. Many of these plants survived this treatment and produced large heads filled with large kernels of

very plump wheat. The winter wheat on the stubble came thru the winter in excellent condition and made a fine growth in the early part of the season but the excessive drought and heat of the summer made it very short and the heads failed to fill. This land produced a heavy crop last year, consequently there was no moisture in the soil for the winter wheat crop this year.

At Page the winter wheat was seeded in the three ways previously mentioned. On both the corn ground and summer fallow the wheat made an excellent growth in the fall and went into winter in good condition. An early snow fall covered it up easily in the season and did not go off until March. The wheat seemed alive but rather weak and the very adverse spring weather finished it. A few plants grew on the corn land and produced large heads of well filled wheat. These plants will be tried out in the plant nursery at the experiment station at Fargo to see if they do not possess superior hardiness. Only a small part of the wheat on the stubble land germinated owing to the drought last fall. This wheat went thru the winter in good shape but there was not enough of it to make a profitable crop so it was plowed up.

At Washburn only a small part of the wheat on the corn land germinated. It went thru the winter in fair shape probably 30 per cent of it winter killing. What was left was disced up and spring wheat was sown instead.

At Bismarck about half of the wheat germinated on the corn land. It went thru the winter in good shape and made a good growth in the spring. It headed well and good plump wheat matured. The stand was very thin and the excessive drought and heat injured it somewhat. The conditions were so severe here that practically no spring wheat matured. The wheat on the summer fallow germinated and grew well in the fall but it winter killed. On the stubble land it failed to germinate.

At New Salem the winter wheat was sown on stubble land only. It did not receive any rain after seeding consequently it did not germinate very well. It went thru the winter in good condition and made a good growth in the early summer, but the very severe drought conditions at this point injured it very much. The straw and heads were very short tho well filled. It was cut July 16 and will probably yield six to eight bushels per acre.

At Beach the winter wheat germinated and made a good fall growth in both summer fallow and stubble. On the corn ground it did not germinate very well owing to the fact that it was

impossible to get the wheat in deep enough when sown broadcast. Part of what germinated winter killed except a strip along side the stubble which held the snow. This strip on the corn land was left and produced a very heavy crop of wheat. Both the stubble land and summer fallow produced very heavy crops, the wheat being forty inches high and with long, well filled heads. These wheat plots all ripened about the same time. They were harvested about July 20, but have not yet been threshed.

This season winter wheat is being sown on 15 of the demonstration farms at Jamestown, Bismarck, Washburn, New Salem, Beach, Hazelton, Page, Hatton, Wahpeton, Hoople, Lakota, Granville, Mohall, Carrington and McLeod respectively. On all these farms the winter wheat is being seeded in stubble, in standing corn and in most cases on summer fallow. This year a one horse disc drill is used to seed the wheat in the corn. This drill is sent as baggage on the railroads. It is then taken out to the demonstration farm and is sent up and a couple of acres of wheat are seeded in the corn and it is then repacked and sent on to the next farm. This machine does very satisfactory work, particularly where the corn rows are straight. Had the winter wheat been sown by this means in the corn last year there would doubtless have been less failures because of poor germination. There will be nearly 40 fields in these winter wheat experiments which are conducted in 15 different counties.

Conclusions from these and similar experiments made on the experiment station farm: Winter wheat of the turkey red variety is the most hardy.

It should be seeded during the month of August on a well prepared seed bed. The ground should be firm below with a loose mulch on top. Winter wheat, particularly in the eastern part of the state needs some winter protection, this is best furnished by stubble or corn stalks. In all probability winter wheat will be grown most successfully in spring plowed barley stubble or on corn land if seeded with a one-horse drill and one row of corn in four is left standing to hold snow.

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See Ad Offer, Page 2--A Winner

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Vol. 12 SEPTEMBER, 1910 No. 3

STRAY STRAWS

Dry seasons tell where the good farmer lives.

Land that has been well cultivated in years past and has had a proper system of cropping produced a good crop of wheat in spite of the dry year.

The amount of moisture in well cultivated land with plenty of good humus, and in spite of the small amount of rainfall is an object lesson for our progressive farmers.

Object lessons are unfortunately wasted on many men. They are doomed to go down hill, fail and be replaced by a better class of farmers.

If velvet chaff wheat makes as much flour as other spring wheats, produces as good bread and as much, then why does it sell at 7 to 10 cents per bushel less than fife and bluestem?

If, as has been said, large quantities of velvet chaff wheat were shipped into Superior but none shipped out then what became of it?

Velvet chaff wheat will weigh 3 to 5 pounds more per bushel than fife or bluestem. Can you tell it when all are mixed?

It has been said that one bushel of good No. 2 Northern fife, one bushel of good No. 2 Northern bluestem mixed with one bushel of good velvet chaff wheat will turn out as three bushels of No. 1 Northern Hard spring wheat.

If it be true as stated above then why

not one carload of each make three cars of No. 1 Northern and in so doing we have raised the grade of the fife and bluestem from No. 2 Northern to No. 1 Northern and gained thereby the extra 2 or 3 cents per bushel but we have gained 7 to 10 cents per bushel by bringing the velvet chaff out of its class and making it over into No. 1 Northern.

This suggests the question then who reaps the benefit? Is it the farmer who grew the wheat or the gambler and parasite who like to call themselves the upper strata of society, the elect. Who is to blame for such a condition? Do you see how to remedy it? Think it over.

The man who has planted corn this year has a good crop, plenty of feed for his stock and looks happy. More than that he feels well assured of a good crop of wheat for that field in 1911. Thousands of school children in the state are teaching the farmers useful lessons in corn growing and in time it will tell in our agriculture.

Growing corn means retaining moisture stored up in the soil for another year's crop, keeping down the weeds, putting the land in better shape and making the plant food better available for next year's wheat crop.

There will be the tendency owing to a poor hay crop to sell off the stock or at least considerably reduce the number of animals on the farm. That is a bad move and farmers who do so will later regret it. Save all the roughage including straw and feed grain to take the animal thru the winter.

More stock and more dairying are essential for success. Wheat may be, as it should be, our leading crop but if we are to succeed, it can not be our only crop. Bread is good to satisfy hunger but bread alone does not make the best men.

Beans have done well in spite of bad weather and always bring a good price. The writer saw in California 1500 acres all in lima beans. If you do not want so much corn then try beans to help enrich the land.

We have one of the best agricultural states in the Union but we need more small industries dependent upon agriculture, more flour mills, more creameries, packing houses, canneries, food producing establishments, cracker factories etc.

Why should North Dakota continue to send her money out of the state for canned corn, beans, pork and beans, peas, beets, onions, pickles and scores of other products. Why do we not en-

courage these small industries that do more than any other to make our state prosperous.

With flax seed \$2.25 to \$2.50 per bushel farmers should find flax a good money crop. It has been shown that the crop is not hard on the land but like wheat it can not be grown continuously on the same soil.

Sow only sound flax seed which has been treated with formaldehyde and on land that has not grown flax for five years and it should prove to be a good crop.

North Dakota is largest flax producer in the country, from 50 to 70 per cent of all flaxseed, it is said, being grown in this state. More attention should be given to this industry since Prof. Bolley has shown what the flax disease really is and how to prevent it.

There is still another side to the flax question: Why is not some of the straw being converted into the numerous products for which it is valuable? Why do we not make twine for binding grain? Why not make linen thread now so rare an article? Why not make lint so much used in hospitals? Why not make linen cloth, towels, etc.? Why not make fine linen paper of high grade? Why should we not encourage these industries, help to get them started and be loyal to the products of our own state and its development?

If we did one-half the boosting for the good qualities of our own state that we do for other states less favored we would make better progress and have more real industries. Knock hard when there is an evil that needs hitting but boost equally as well for all that is good and for the best interests of mankind.

But what is a good paint? Is it not one that will make the best protective, and decorative coat, wear longest and leave the best possible surface to be painted again? Is water good for either of these purposes? Is fish oil, cotton seed oil, mineral oil, etc., the equal of linseed oil? Does turpentine serve any useful purpose in a paint? If so, then is gasoline, benzine, etc., equally as good? If not, then why not?

Will chalk make a good paint pigment? or ground up marble? Will clay do all right for paint? If not, why not? If these products are not good alone will they by admixture improve the good product. If they are really good then why not say that they are present? Who would be harmed by it?

There is a vast difference between destructive criticism and corrective or

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JELLY

DESSERT
NUTRITIOUS-WHOLESAME

One package, 10 cents, makes one pint of wholesome Fruit Jelly. All flavors from true fruits.

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PURE FOOD PRODUCTS

Fruits, Vegetables, Spices, Extracts, Coffees, Teas, Cereals, Sauces, Catsups, Syrup, Molasses, Starches, Saleratus, Etc., Etc. These goods are the

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A GUARANTY OF PURITY. A WELCOME GUEST at every table where the HOUSEWIFE demands the BEST. THE MONARCH LABEL insures QUALITY in Coffee, Catsup, Pickles, Maple Syrup, Canned Goods or any article bearing the MONARCH BRAND of REID MURDOCH & CO., CHICAGO.

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“The Cash Grocer”

We buy in large quantities, for cash only, for our various stores and can save you money.

Big Store

Big Stock

Big Sales

Small Profits

Cash

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PURE.”

HONEY

Well ripened clover Honey for Sale, guaranteed absolutely pure and of the finest quality. One 30-lb. can 11 1/2¢ per lb.; 2 or more cans 11¢; 12-lb. cans, in full cases of 72 lbs., 11 1/2¢ per lb. Send for price list. Address

M. V. FACEY, Preston, Fillmore Co., Minn

constructive criticism. We have been talking about destructive criticism, to break or ruin, to muzzle or throw out; that is the kind employed by the fake medicine-man, the food adulterator and paint doper. Honest criticism is to correct evils, to point out wrongs, to improve conditions, to construct or re-construct something better than was before. To which class do you belong?

Sometimes I want to tell you why I like North Dakota, her climate, her soil, her people, her possibilities. To do so I may be called a knocker for some other places, but I will try and point out some of our own short comings as well. I saw Colorado, Arizona and New Mexico, California, Washington, Oregon and Canada and I came back each time better pleased with our own conditions and future prospects. North Dakota has an occasional bad storm, real blizzard, Arizona and New Mexico have depressing heat, glaring sand, soils that must be irrigated; California has her great wastes of desert land, alkali, hot sun parching everything, her sand storms, and much that is good; and so it goes but more some other time.

Think of a cow that produces more than her own weight of butter in a single year, more than 1000 pounds per year, and yet such records we now have well authenticated. Year by year the dairy cow is being improved, made better, more productive and she is the great mortgage lifter of our land. Bread and butter for all the west should be produced right here in North Dakota. We grow the wheat to produce the flour and this would give us the bran and shorts to feed the dairy cow. True, farmers do not like to milk cows, help is uncertain, but sure as fate we shall soon have plenty of practical milking machines and then it will not be so bad. In fact, it would be better if we were forced to do something all the year round and not work six months and then be away from the farm or out of the state for the balance of the year. Idleness is not a good breeder of thrift and prosperity.

Infantile paralysis, that much dreaded disease is being carefully studied by scientists, but the man who knows but little about it is most often heard at present; for it is well known that drowning humanity catches at a straw. Soon, however, we shall have more trustworthy information and then a better understanding of how to treat the disease. In the mean time, let us be careful of the animal pets we fondle, of flies and vermin, and of street dust. Be careful of what we eat, keep bowels

open and a good general health that we may the better ward off all diseases.

One farmer grew 20 bushels of wheat from his 160-acre farm. His neighbor plowed most of his wheat under and on the rest of his farm got 6 bushels per acre. Their farms joined, the soils were apparently the same, then why this difference? One man has for ten years had a good herd of cows, keeps hogs and poultry, grows a variety of crops including corn as feed for his animals. The other farmer, well he just grows wheat, that's all.

If your stock fail to thrive well this winter and they have good feed, better look about and find a reason for it. Perhaps the ration is not well balanced but it may be due to bad water for water containing large quantities of Glanders Palls, alkali carbonates, Epsom salts, etc., will work trouble for you. There are many bad waters as well as many good ones in the state. Remember the animal in winter must drink or perish and he must take what you give him.

A few years ago during the dry seasons we had many cases of deaths of animals when they were first fed hay. The season being dry, old sloughs were cut out when water hemlock was growing and this found its way to the hay stack and was fed to stock, death resulted. One man lost a \$400 bull, another lost several calves and another lost many sheep all pretty conclusively shown to be due to water hemlock. Watch out for the plant in your lowland meadow hay cut from sloughs or wet places.

FREE SCHOLARSHIPS FOR SONS AND DAUGHTERS OF JEWISH FARMERS

In North Dakota there are a number of Jewish settlements and a recent proposition made by the Jewish Agricultural and Industrial Aid Society should be of particular interest to these. They offer to pay the entire expenses of twelve students in the United States to attend the Short Winter Courses at the Agricultural Colleges. This includes the payment of board, room, books and other incidental expenses of the course—everything except railroad fare. The scholarships are to be awarded by composition in English, not exceeding 500 words, on some agricultural topic based upon the candidates own experience.

Here is an opportunity for some young man or woman to secure, practically free of expense to themselves, a three months course during the coming winter. Those interested should write to the Jewish Agricultural and Industrial Aid Society, 174 Second Ave., New York City.

SLAUGHTERHOUSE REFUSE

The question is asked whether or not it is permissible, under the Sanitary Inspection Law and the Food Law of the state, to feed slaughterhouse refuse to hogs in and about the slaughterhouse. This may be considered a question which must be determined by the courts in accordance with the evidence submitted in the particular case. But on general principles the Department believes that the feeding of slaughterhouse waste to hogs should be discouraged, and that the same is to be classed in violation of the spirit, if not of the exact words, of both Food and Sanitary Inspection Laws, unless the products are first cooked and fed while in good condition.

By the feeding of slaughterhouse waste to a flock of growing pigs and hogs there is great likelihood of introducing tuberculosis, as it is a well known fact that the intestines, as well as other internal organs, are to a considerable extent affected and the eating of these parts is liable to render the animal diseased; therefore, affording means of transmitting tuberculosis to the human family.

There is another even more serious objection, it seems to me, with regard to the use of slaughterhouse waste, viz., when fattened hogs are placed in pens where there is a mass of putrefied, decaying animal products, being unaccustomed to such a class of food, quite likely without feed for some time, naturally ravenous, they devour large quantities of these products containing putrefactive poisons, and probably ptomaines. The result is that the animals are thoroly poisoned; they may be stricken down with severe illness having many of the symptoms of ptomaine poisoning; the flesh is feverish and unfit for use in this condition. Some of the animals are so completely overcome and purged by over-eating of this rotten material that they are scarcely able to stand and in this condition they are slaughtered. Every butcher knows that meat from such an animal cannot be properly preserved; that hams cannot be put down which will keep for any length of time; and yet animal flesh in this condition, unbeknown to the consumer, comes into the home and is eaten with injury to the person.

It is not fair to the consuming public to permit of possibilities of this kind of abuse, and the safest way is to see that all refuse matter from the slaughterhouse is properly disposed of without being fed to animals that are to be used for human food.—Food Bulletin 25, Agricultural College.

Livestock Department

PROF. W. B. RICHARDS, Editor

DAIRYING PROFITABLE

G. L. Martin, Agricultural College

When traveling in an eastern state a few years ago I noticed a statement in one of the farm papers which read: "Wherever you find a Yankee you read a dollar and the Yankee usually gets the dollar." I was naturally impressed with the wording, sufficiently so to make a careful study of the actual conditions that exist on the farms and the strict application of business principles which the farmers employ.

The New England farmer has been brought face to face with the problem of making every dollar invested return the highest interest. His capital is usually small and the cost of living high so he has been forced, thru circumstances, to farm intensively rather than extensively—to couple economy of production with expedience in distribution. He has found it necessary to have his capital invested in such a way as to increase in value and continue to draw interest the entire year. This has made it necessary first, to equip himself with a thoro knowledge of his business; secondly, to invest his capital where it will bring safe, continuous returns, and lastly, to apply only the best business principles in its management. As a consequence dairy farming is largely the occupation.

The Yankee dairyman has not always availed himself of the opportunity of taking a course in a school of agriculture nor has his success always been dependent upon it. But he has had a schooling impossible for those to obtain who have grown up in the west where the farms are large and little attention given to detail. From his boyhood days, by force of circumstances, he has seen and handled the best breeds of dairy stock, learned to apply the best methods of feeding, care and management to the herd, knows what crops are best adapted to improve the soil and at the same time fulfill the requirements of a balanced ration for a dairy cow. He has helped plan the rotation of crops and knows which ones are best suited for soiling purposes for he has been obliged to plant these at such successive stages that they will come on during the summer in amounts sufficient to maintain a full milk flow from the herd. He has helped plan and equip barns with refer-

ence to convenience, light, ventilation and sanitation and build silos, creameries and cheese factories.

After the cows are milked the product must be handled in such a manner that it will reach the market in the most wholesome condition. This involves proper cooling, bottling and distributing if the product is sold as milk or separation, care and disposition if manufactured into butter or cheese.

The markets in the east are new and competition keen which requires close observation in the economy of production and the application of good business principles in distribution. All of these things have come to

upon the generosity of nature in giving him an abundant crop. When the rain, wind, hail and drouth come and ruin his harvest there is always something to rely upon when he has a few cows. Again he is not hampered by middlemen, high freight rates, nor lack of demand for his product but on the other hand he can put his produce upon the world's greatest markets first hand as a finished product without delay for there is always a good local demand for all dairy products.

Progressive farmers of the state are beginning to recognize the importance of combining stock raising with grain farming. They realize that a change must be made from the old extensive one-crop system of farming with its slack uncertain methods of management, to a more intensive, diversified system which will call for more certain investments of capital, closer application to business principles and a wider knowledge of the fundamental principles of scientific agriculture. In short, the same methods of manage-



"The Importance of Combining Stock-raising with Wheat-raising"

him first hand as a part of his life experience, his environment, and as a result he is equipped with a very necessary training. Whereas the boy has been raised under less exacting conditions while he may know a good many things relative to extensive agriculture, has had no opportunity nor necessity of applying and working out his methods in an intensive way.

As the supply of available land decreases, the farmers will be forced to apply more economical and reliable methods to the business of farming. They are rapidly coming to realize the situation of their Yankee brother and must by force of circumstances select that kind of farming which will insure safe investments, quick returns and large profits.

The dairy farmer has a peculiar advantage over other classes of farmers in that he is not entirely dependent

ment which come to the eastern youth thru personal contact as a natural consequence of his environment must be acquired by the western boy thru other sources.

For these reasons the North Dakota Agricultural College is endeavoring to meet the demands and has planned several courses to supply specific needs among which are the courses in dairying. Instruction is given in both the productive and manufacturing phases of the industry with special care and management of the herd, milk production, care and distribution of milk and cream, manufacture and disposition of dairy products. To be a successful dairyman calls for the application of a more scientific knowledge than perhaps any other line of agriculture and unless one has such qualifications and is able to combine them with strict business principles the

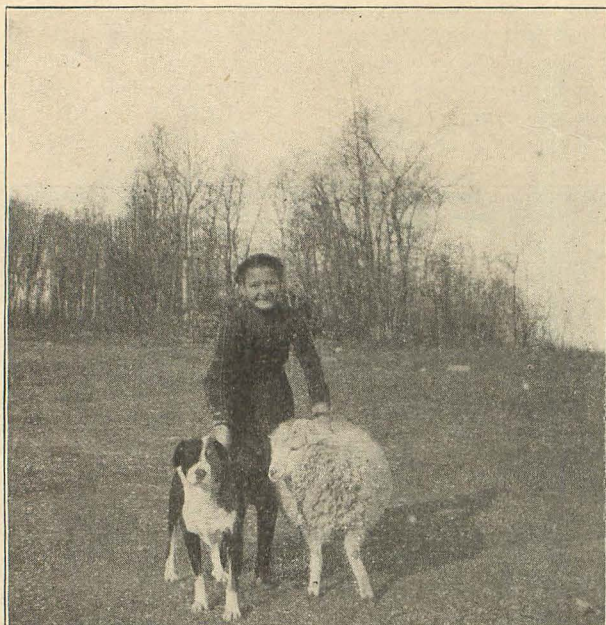
chances for success are greatly lessened.

Unlike the Yankee who had been forced by circumstances to acquire more or less of a special training, the young man of the middle west comes largely unprepared for the great industrial changes that are present. To him the acquiring of a technical training is more of a business proposition. Whether he enters upon his life career keen to the possibilities which await the trained man or be forever hampered thru lack of training may determine to a large degree his success or failure in life.

FEEDING AND WATERING THE HORSE

W. C. Palmer, N. D. A. C.

An important fact to know in the



Three Helpers on The Farm.

feeding of the horse is that its stomach is quite small, that is, it will hold about 2 gallons. If the horse is fed his grain first, then hay and then water, the grain will be pushed out of the stomach before it is digested. The best way is to water first, then feed some hay, and then the grain. In case the horse is warm it would not do to give all the water it would take, but it should be given a little even then. During the warm weather it would be well if the horses be watered in the field at least once during the forenoon and in the afternoon. A horse will eat too much hay if given all at once. Feed a smaller amount of hay at noon. In hot weather it pays to take at least an hour and a half rest at noon and often times even longer and then working a little later in the evening.

OUR AWL OFFERTAKES, PAGE 2

THE HORSE'S MOUTH

H. E. Kingman, Colorado A. C.

A colt's mouth does not ordinarily require attention until he has reached his second year. By the time the youngster is one year old he has on each jaw, upper and lower, six front teeth, or incisors, and six grinders, or molars.

Between the second and third years a horse discards twelve teeth in all, which are replaced by permanent ones. These are the middle incisors and the first and second grinders on each side. During this time very serious difficulties may be encountered. Frequently an incisor will fail to loosen and be tipped forward by the incoming

At one time, before the horse was a servant of man, he was provided with a full set of teeth, that is, there was no space left between the incisors and the molars. It is not infrequent to see a very small tooth just in front of the first grinder. This is a vestige of the old times, and is commonly termed a "wolf tooth." It does no harm and has no ill effect upon the animal's eyes, as is some times claimed.

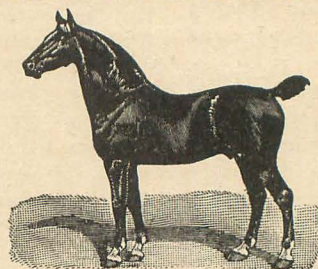
The grinding surface of the molars normally wears in an oblique fashion, so that very sharp points form on the outside of the upper teeth and on the inside of the lower. These should be carefully removed. It is probable, however, that in most cases too much is taken away and the grinding surface of the tooth is injured. A horse's mouth should be dressed once every year, and, as has already been intimated, the young horse should be watched lest some irregularity in shedding cause him a great deal of suffering and perhaps cost his life.

FOURTH ANNUAL NORTHWESTERN LIVESTOCK SHOW

The Fourth Annual Northwestern Livestock Show, which is to be held at the Union Stock Yards, South St. Paul, November 15 to 18, is not in any sense a duplication of the State Fair or any other show of that character. State fairs and county fairs are for the most part confined to classes for breeding animals, and the encouragement of that branch of the livestock

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The Lawrence-Williams Co., Cleveland, O.

industry is of course the foundation for improvement in all other branches.

The Northwestern Livestock Show simply supplements the work of shows designed for breeding classes, in that this show is designed wholly for market types of livestock, and carries no classes for breeding animals outside of a very small class for range rams. The premium list carries liberal cash prizes in all classes, and in addition to the Association prizes, there are many special offerings of cups and cash prizes, which make it well worth the feeder's investment of time and money to feed stock for this show.

The Minnesota Livestock Breeders' Association has offered specials for the benefit of exhibitors from Minnesota, covering single and carload entries of cattle, sheep and swine. The Minnesota Sheep Breeders' Association has also offered special premiums for Minnesota sheep. The North Dakota Livestock Association has shown its interest in the North Dakota exhibitors by offering special premiums for the best steer and the best lard type or bacon type hog, shown by an exhibitor from that state. The Minnesota Farmer farm, under the management of E. A. Webb, very generously duplicates the Association prizes when won by pure bred and grade Berkshire hogs. The American Yorkshire Club has offered, as an evidence of its desire to encourage the production of Yorkshire hogs, to duplicate the Association's Grand Championship Premiums for bacon hogs if won by pure bred or grade Yorkshires.

H. F. Brown, proprietor of the Browndale farm of Minneapolis, and President of the Association, has shown his strong personal interest in the amateur exhibitor by offering a special line of premiums amounting to about \$400, for amateur exhibitors of short horn cattle.

These special premiums make it possible for exhibitors to accumulate cash winnings that are worth while, and it is believed that the farmers and feeders of this territory will take advantage of these generous offers.

THE ROYAL BREEDING SALES

The best chance of the year to get cattle for breeding or feeding is at the American Royal Livestock show, Kansas City, October 10-15. The purpose of this show is to disclose the animals which represent the highest progress in breeding, since the leading breeders are represented, and the contests involve comparisons of such leading herds. It is important to every breeder, therefore, to find out, at the Royal, just what the ideal characteristics of beef cattle are—and it is equally important that he

ST. PAUL UNION STOCKYARDS COMPANY

Comparison of Receipts and Shipments of Livestock for August

	Receipts						Total Cars
	Railroads	Cattle	Calves	Hogs	Sheep	Horses	
C. R. I. & P....	265	26	773	343	1	26	
C. G. W.....	507	227	2052	886	8	62	
C. M. & St. P..	9095	1737	6852	5622	88	497	
M. & St. L.....	1452	373	5121	778	.....	148	
C.,St.P.M.&O	3527	1264	10362	6118	20	338	
C. B. & Q.....	298	125	1118	1533	.....	41	
M.St.P.&S.S.M	11811	3479	6350	5629	1	522	
Gt. Nor.....	19717	4533	10395	28910	67	1088	
Nor. Pac.....	13287	2487	2924	31372	142	690	
St. P. B. & T. ....	.....	.....	.....	.....	.....	.....	
Driven in.....	588	101	703	410	.....	.....	
Total.....	60547	14352	46650	81601	327	3412	
Increase.....	29441	7500	29855	45027	.....	1724	
Decrease.....	.....	.....	.....	.....	136	.....	
Jan. 1 to date	224933	81583	476318	261117	3840	17001	
Increase.....	51000	28919	83489	.....	.....	3279	
Decrease.....	.....	.....	13453	.....	622	.....	
Average Wts.	765	169	255	85	.....	.....	
	Shipments						Total Cars
	Railroads	Cattle	Calves	Hogs	Sheep	Horses	
C. R. I. & P....	1660	21	.....	2349	3	66	
C. G. W.....	6931	253	.....	9992	.....	258	
C. M. & St. P..	10136	428	11875	4357	63	476	
M. & St. L.....	1207	29	.....	3186	.....	63	
C.St.P.M.&O.	5667	1191	1317	7890	4	297	
C. B. & Q.....	17888	324	.....	15901	242	625	
M.St.P.&S.S.M	879	68	503	18722	1	123	
Gt. Nor.....	538	113	9	847	22	25	
Nor. Pac.....	155	60	.....	452	2	25	
St. P. B. & T. ....	.....	.....	.....	.....	.....	.....	
Driven out....	360	183	178	49	19	.....	
Total.....	45421	2670	13882	63745	356	1942	
Increase.....	26486	744	12050	43431	.....	1149	
Decrease.....	.....	.....	.....	.....	132	.....	
Jan. 1 to date	146508	20490	92675	170939	4188	6688	
Increase.....	29347	1957	.....	66250	.....	1340	
Decrease.....	.....	.....	5855	.....	313	.....	

Comparison of the Origin and Disposition of Livestock for August

	Origin of Livestock Received						Total Cars
	States	Cattle	Calves	Hogs	Sheep	Horses	
Minnesota	24304	8643	33835	15728	22	1506	
Wisconsin.	5680	2559	4627	9841	39	340	
Iowa.....	79	.....	139	75	.....	7	
Far South.....	21	.....	.....	.....	.....	1	
So. Dakota	8743	1254	3494	1968	.....	390	
No. Dakota....	13063	1364	4555	4437	86	580	
Montana.....	8525	532	.....	45438	180	569	
Far West.....	.....	.....	.....	3868	.....	13	
Manitoba&NWT.....	.....	.....	.....	.....	.....	.....	
Far East.....	.....	.....	.....	.....	.....	.....	
Returned.....	123	.....	.....	246	.....	6	
Ttolas.....	60547	14352	46650	81601	327	3412	
	Disposition of Livestock						Total Cars
	States	Cattle	Calves	Hogs	Sheep	Horses	
So.StPaulPkrs	15455	11020	32739	17270	.....	.....	
City&St'teButch	1251	469	1540	599	.....	73	
Outside Packers	1258	902	11845	5374	.....	199	
Minnesota.....	2262	284	.....	5972	45	114	
Wisconsin.....	708	16	57	1147	4	36	
Iowa.....	4321	92	.....	5352	.....	169	
Nebraska.....	109	2	.....	487	.....	6	
Kans. & Mo....	170	.....	.....	.....	.....	4	
So. Dakota. ..	1	.....	.....	1409	2	11	
No. Dakota....	.....	.....	.....	1521	.....	8	
Mont. & West	161	1	.....	.....	.....	4	

discover where he can get such animals to use in breeding.

The sales of breeding cattle at the American Royal have been appreciated. Breeders know that the animals offered are carefully selected, since it is a matter of principle as well as of pride, for the association to arrange for the inspection and selection of the offerings. The secretaries of the Hereford, Shorthorn, Galloway and Aberdeen-Angus associations report that the committees have already inspected the animals offered for the sale, and that the best lot Royal visitors ever had a chance to bid on will be seen. About 50 animals will be offered by breeders of each breed. Many of the bulls are fit to head the good herds of the country; many are young animals, with which new herds might well be started, and all are exactly the selection from which a person desiring to improve his herd can find the animal he needs. The secretaries of the associations, as well as prominent breeders, are available during the show to suggest to prospective purchasers the chief points of the breeds.

RATION FOR STRAW OR ROUGHAGE

Will you kindly advise me thru this month's issue of the North Dakota Farmer the best way to feed last year's wheat straw as that is all the roughage we have available as our hay crop was an entire failure. Have a small quantity of this season's wheat and oat straw which we desire to reserve for spring feeding. What should we feed with the wheat straw to make a satisfactory ration? The old wheat straw is mostly bright except on the outside of the stack which is weather-beaten.

You will confer a great favor on many readers by giving us information on this point.

J. H. W.

Dresden, N. D.

Answered by Prof. J. H. Shepherd.

Oat straw is considered the best of the cereal straws for feeding livestock. Wheat straw is very much poorer. Wheat straw does not have the palatable, digestible chaff which oat straw carries and is considerably more woody besides. Flax straw on the average is as good if not better than oat straw for feeding. The stems themselves are very woody, but usually there is some immature flax seed left in the straw and frequently some ripe flax seed, which probably accounts for its high rating as a feed for livestock. Immature flax that has been frosted or haled down and grown up a second time should be carefully cured and stacked for winter roughage this season. It makes splendid feed if used with a little precaution. Whenever a supply of flax straw is given to

Far South.....	146					3
Manitoba&NWT	1				2	1
Mich.& E. Can	15				65	3
Chicago.....	12860	599	440	41064		693
Ills. (ex Chicago)	12079	82		574	64	336
Eastern Points	9947	223			174	276
Returned.....	132			246		6
Totals.....	45421	2670	13882	63745	356	1942

CENTRE-LANE STOCK FARM

BREEDER OF: Black Percheron and Hambletonian Horses, Red Polled Cattle, Poland China Hogs, White P. R. Chickens, White Holland Turkeys, White Embden Geese, White Pekin Ducks and White Guinea Fowls.

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J. A. ENGLUND, Prop.

Kenmare, North Dakota.

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PET STOCK OF ALL KINDS.

PURE BRED POULTRY.

We can please you both in Quality and Price

L. H. WHITE, Prop.

COGSWELL, N. D.

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Willobank Farm Larimore, N. D.

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stock, they should be gradually accustomed to it before being allowed all that they will eat if there is any considerable amount of flax seed in it. There are always a few gluttonous animals in the herd or flock that will eat little besides the seed if they can sort it out from the straw. They can eat large quantities of it if they have been gradually accustomed to it—without causing serious trouble. It is very heavy and oily and on that account it is apt to cause digestive troubles if fed in much quantity before the animals have become used to it.

The N. D. station did a considerable amount of work in horse feeding a number of years ago and made extensive trials with oat straw as compared with hay for roughage. In the trial I found that some horses did about as

well on it as they did on hay. While others were very much harder to carry chiefly because their appetites for roughage were too light to cause them to eat enough of it. Aside from those dainty animals I had little trouble in keeping them up on oat straw as roughage.

The oat straw that I used was that of a normal season which was coarser and more woody than that which has been obtained this year. The straw from this year's crop in this part of the state is bright and fine stemmed, facts which add to its feeding value very materially.

The trial made at the college consisted of a period of sixty days feeding with oats as the grain ration against a similar period with oats and hay, and sixty days feeding with a mixture of half and half bran and shorts by weight with hay compared with sixty days feeding bran and short with oat straw.

During the first thirty days winter conditions were present and the horses were used only about enough for good exercise. During the second thirty days they were worked at harrowing, discing and seeding and had nearly all of that work the last half of the month.

The horses receiving oats and hay as a ration required nine and one-third pounds of oats with hay to carry them, while those on oats and straw consumed eleven and one-half pounds of oats per day. During the thirty days that they had light work, the horses on hay gained 176 pounds and the three on straw 169 pounds. During the thirty days when they had heavy work one-half of the time, those on hay lost 340 pounds and those on straw 345 pounds.

The similar lots of horses fed on bran and shorts half and half by weight gained during the winter conditions 88 pounds when fed hay and 83 pounds when fed straw. When they were on the straw ration with heavy work for one the straw ration with heavy work for one-half of the month they lost 225 pounds and on the hay ration 235 pounds.

These results indicate that horses can be carried almost as successfully on straw as roughage as they can on hay, provided enough additional grain is given them to supply them with sufficient nourishment. The additional grain required is about one-fifth.

If the feeder has facilities for chaffing the straw and will moisten it and mix the grain fed with it during the season when the animals are required to do very little work, a smaller amount of grain will carry them. Canadian and English feeders pulp roots and mix with chaffed straw as a feed. They get excellent results and the roots seem to make the straw very much more acceptable to their stock.

THE ADVANTAGE OF SILAGE OVER OTHER FEEDS

By G. L. Martin, Prof. Dairying N. D. AC.

There are several points which every cow owner would do well to consider if he is to get the best milk yield and reap the greatest profits from his herd. In the first place, a cheap ration must be provided, one that can be raised upon the farm; secondly it must be well adapted to milk production and fed liberally.

As a rule, the greater portion of the feed can be raised at home which always lessens the cost of production. For that reason, corn silage has come to be recognized by nearly all stockmen as the most economical feed the farmer can raise. To show this more clearly we will figure the actual cost of feeding an average herd of ten cows from the time the pastures fail in the fall till grass comes in the spring or a period of some 240 days.

The amount of silage necessary for 10 cows for the given period, allowing an average feed of 40 pounds to each cow per day would require 48 tons. The average yield of green corn per acre in North Dakota is close to 8 tons. At this rate, 6 acres of corn would furnish a sufficient amount. The United States Department of Agriculture estimates the average cost of raising an acre of corn to be \$11.07, and reliable authorities figure the cost of putting corn with the silo to average about 75 cents per ton. Then we may arrive at the actual cost of the feed as follows:

Cost of raising 6 acres of corn \$66.42
Cost, harvesting 6 acres of corn \$36.00

Total	\$102.42
Silage for 10 cows 240 days	\$102.42
Silage for 1 cow 240 days	10.24
Silage for 1 cow one day	4 1/4c

According to the best authorities on animal feeding the leaves and the stalks contain about 37% of the food value in the corn plant which is practically a total loss if the ears only are fed. A 100 pounds of silage contains 13% or 13 pounds of food material, at which rate 48 tons would contain close to 11,480 pounds. If this amount of food material were furnished in the form of:

Prairie hay	would require 11 tons at \$12, \$132
Timothy	would require 12 tons at \$18, 216
Oats hay	would require 11 tons at \$15, \$165

The economy of feeding ensilage is even more striking when we compare the cost of a ration made up largely of grain and one where a part of the oats, corn and bran are replaced by corn silage.

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FOR SALE Six farms, joining, 6 miles from Bowbells, will be cheap. Write for particulars. **The Lyon Land and Loan Co.**, Bowbells, N. D.

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F. L. HOUGHTON, SECY, BOX 135, BRATTLEBORO, VT.

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I have a method that will make your hens lay every day; it never fails. Write for it,

MRS. B. F. WILCOXON,
Hillsdale, Wyo., Dept. 5

Try our Classified Ads. The cost is reasonable.

Grain Ration		
Pounds Food	Cost	
Material Used	per day	
10 lb. Prairie hay.....	4.7	.06
2 lbs. Oats hay.....	1.2	.03
6 lbs. Bran.....	3.3	.06
4 lbs. Corn.....	3.2	.05
1 lb. Linseed meal.....	6.9	.02
23 lbs. Total	19.3	.22
Silage Ration		
40 lbs Silage.....	5.2	.04
10 lbs. Prairie Hay.....	4.7	.06

4 lbs. Bran.....	2.2	.04
1 lb. Linseed Meal.....	6.9	.02
55 lbs. Total	19.0	.16

The above rations are figured for the average dairy cow and each contains practically the same amount of food material. It is noted that there is an actual saving of 6 cents per cow per day or for 8 months, the average time a dairy cow would be fed would mean a saving of \$144 in cost of grain or \$14.40 per cow.

farms. He said that some North Dakota farmers were refusing \$100 an acre for their land which shows that it is beginning to be appreciated. The great problem is to make this soil produce the most and at the same time not to impair its value for the future. He stated that the tendency was to farm too much and to go over it so hurriedly that poor crops were the result, that often one could see a good crop on one side of the road and a poor one on the other side, and all due to the manner in which it had been handled.

The Governor laid emphasis on the rotation of crops and quoted the theories of the Department of Agriculture at Washington showing the reasons for rotation. He also spoke of the value of cultivated crops. How a crop of corn if well cultivated is as good as a summer fallow in preparing the land for a crop. He spoke of the fact that potatoes are so good a preparation for other crops and that it was not because they added anything but that the deep plowing, the cultivation and that in both planting and digging the soil was worked, that this was the explanation of the good effects.

The Governor stated that the planting of trees would do more than anything else to beautify the state. That the trees would both add to the value of the farms individually and to the state and community in general. He wanted to see trees planted on every farm, that when it was done it would be the most beautiful state in the union.

Miss Adele Pomeroy then favored the audience with a vocal solo which was so well received that an encore was called for.

The next speaker to be introduced was Prof. Palmer of the Agricultural College. He spoke on the saving of soil moisture. Among other things he said that to produce a 32-bushel crop of wheat it was necessary that the crop be able to draw eight inches of moisture from the soil, in case of a dry year it was necessary that most of it be stored in the soil. To do this the first thing was to plow deep. This lets the rainfall get in easily and for more of it to get in, this will mean that there will be very little run off. It also furnishes more food for the plant as its roots are mostly in the layer of soil that is plowed. If it is doubled it will mean twice as much feeding surface for the roots. When the moisture is in the soil the next step is to keep it in the soil. To do this keep the surface soil loose and the soil well supplied with organic matter. The moisture can not pass up thru loose soil. If the land is to be fall-plowed it should be plowed early; this will stop evaporation and kill weeds that draw the moisture out of the soil. If the land is not to be fall plowed it would be a good practice to disc it as soon after harvest as possible.

Ambrose Celebrates

On Saturday, August 20, Ambrose held its first Harvest Festival and made great preparations and people came in from all parts to take part in the events of the day. Ambrose is one of the new towns, six years ago the writer drove thru the country and then there was nothing but a few shacks to be seen on the wide prairie where there is now a town of 500 people.

The program in the forenoon consisted of addresses and music. The first number being a selection by the Ambrose band. Mr. Miller then introduced Gov. John Burke who opened his address by complimenting the people of Ambrose and vicinity on their choice of country. The crops about Ambrose are quite good and they have had a good crop every year since coming here. He then told a story of a certain man who, on going to Heaven found some people who were bound. He questioned St. Peter how it was that they had these people bound. St. Peter replied that they were good people but that they were from North Dakota and that they would go back if they let them loose. He said that he knew of no country that had so few draw backs to its pioneers as this state and especially this section. He said there were many places in the state where they could not very well hold a harvest festival this year, so that Ambrose is very fortunate to have such good crops. He said tho that he had been talking with the men in the sections where they had crop failure and they said that even if they did not get a crop this year they were ahead as they had been getting double crops for so many years.

The Governor then took up the subject of conservation of our natural resources. That they are for our use and enjoyment but they they should be passed on to the next generation unimpaired. He said that the resources were falling into the hands of the few. And that there was a tendency to waste them. That for every ton of coal that was mined one ton was left in the mine and so that it could not be mined. That trees were cut down with no idea of pro-

viding for the future. That in Germany when a tree is cut down another must be planted to take its place. Trees mean so much, they not only furnish wood for fuel and timber for manufacturing purposes but that they also influence climate, that they influence the flow of streams, and even temper winds cooling them in summer and warming them in winter. While North Dakota has no forests yet the deposits of coal were evidence that the state had at one time had vast forests as the national geological survey credits the state with having more coal than any other state in the union. Five hundred billion tons, a sum so large as to be beyond comprehension. The efforts at briquetting the lignite now seem to be nearing success. The great beds of pottery clay are another resource; from it the finest china can be made, as well as tile and pressed brick of the finest quality. And to make it complete the coal and clay are to be found in the same bank one above the other. Cement material is also abundant in the state so that it will certainly become a great manufacturing state some day. He also mentioned the natural gas that has been found in Bottineau county and that there are undoubtedly large amounts of it in other places as well.

He stated that he had not touched on the greatest resource of all, the soil. These others were great but not to be compared to the soil as that is what all animal life must subsist from. The whole human race is dependent on it for food and clothing, so that the great problem in conservation is the soil, which not only must furnish our food but that for generations yet unborn, for people as long as they shall exist. He stated that the land was not yet really appreciated as there had been so much of it that it could be had with but little effort. That Uncle Sam had been giving away so much of it that every corner could get a farm; now it is about gone, yet the population is increasing and the land really decreasing—erosion and washing destroying the soil and ruining

In the spring harrow as soon as possible and also harrow after the grain is up a couple of inches.

He stated that he wanted to emphasize the statement of the Governor that cultivated crops were valuable; that they were as good as the summer fallow. The cultivation saves moisture and also kills weeds, and in addition a valuable fodder and grain is secured. He related that at Hoople on the demonstration farm one plot that last year had corn on it and was manured this year in wheat and will produce 25 bushels per acre while the adjoining field that has had the same crops as the one in corn last year except that it was in wheat last year and is in wheat this year will not produce five bushels.

He also emphasized the value of growing clover or alfalfa, these crops enrich the soil. It was the wild clover that made the North Dakota soils so fertile and if these crops are not grown once in a while crop yields will go down.

A trombone and cornet duet was then rendered by Setterland and DeWitt.

Supt. T. A. Hoverstad was then introduced. He stated that President Worst was away or he would have been glad to be present. He stated that the reason that he had not granted Ambrose an institute was that there were so many requests that he had enough ahead for two years and that he did not have funds to run more than one set of institutes. That 98 regular institutes had been held and 33 Better Farming Train meetings had been conducted with an attendance of 52,000.

He then discussed the grain situation and said he hoped that the North Dakota farmer would so handle his soil that he would be able to market more wheat that the country needs. Last year only 17 per cent of last years wheat crop was exported and this year there will likely be none for export. With an increasing consumption and no increase in production there will soon not be enough produced to supply our own needs. He also regretted that the wheat should be shipped out of the state to be ground when we have so much fuel in the state. He also spoke of the fact that there are two families in town now for each family on the farm and that the families in town are dependent on the family on the farm. He thought that the outlook for the people on the farm was better than for those in town.

The Superintendent then took up a discussion of tree growing and suggested that Ambrose plant a wind break. He suggested that it be planted on the north and west sides. That two rows of willow quite near each other be placed on the outside and 150 feet inside this, plant a strip of trees eight to ten rods wide, planting them in rows eight feet apart and two feet apart in the row. The



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trees should be well cultivated. He also stated that they should not be planted on the prairie but that the soil should be subdued first. That it was best to grow a crop on it first. He also advised planting young trees; seedlings will make as large a tree in a few years as larger trees and be less expensive. Plant in the spring time. This will be close planting but when the trees begin to crowd, then cut out every other one, and when they crowd again cut out more. The close planting will make the trees grow straighter and it will also make the trees shade the ground sooner, thus making it necessary to cultivate for a shorter time. He recommended planting elm, box-elder, ash, hackberry and white spruce. Plant them alter-

nately. The boxelders grow fastest but they are a short-lived tree so they should be planted so that they can be cut out

He also spoke of the value of birds and that the planting of trees would make a home for the birds. He stated that he had at a number of places suggested this plan of protection but that he did not know of any town that adopted it. The winds will continue to blow and the snow will fall but such a windbreak will keep the snow from drifting into town and filling up the streets and yards. Miss Pomroy again rendered a solo. Mr. William Miller presided.

After dinner several stunts were pulled off. The ball game resulted in a victory for the Columbus team by a score of 8 to 0. In the horse race

V. L. Gilbert's horse, the Corn Husker, won; time 2.37. In the running race C. J. Clark's horse won. In the novelty race Luther Wilson's horse won. In the farmers' race Charley Turnbull won. There was a fine display of grains and vegetables that would do credit to any

county. Sweet corn that would tickle the palate of an epicure, and grown but two miles from the Canadian border.

This closed the first harvest festival held in Ambrose. All who attended were much pleased and entertained. There was something doing all the time.

Poultry Department

Prof. O. W. Dynes, Agricultural College

A STUDY IN EGGS

Can a hen lay 200 eggs a year? Some hens lay more than that, the record of one energetic layer having been 213 eggs in 261 days. But the everyday hen lays only 120 eggs in a year. To augment the milk of the cow signifies merely an increase thru breeding of the size and productiveness of the lacteal glands. But no human power has been devised for placing into a hen a larger number of eggs than nature has provided her with. She comes supplied with about 600 eggs. And the problem is to induce her to lay about 400 of these during the first two years of her life. After that it does not matter much, since she is doomed to extinction by that time.

The scientists have discovered that of the two egg receptacles with which every pullet is provided only one is developed, the other being nonproductive and useless. The eggs found in the pullet are massed together much like a bunch of grapes. They are mere cells about a sixty-fourth of an inch in diameter. Each consists of a tiny spherical mass of protoplasm surrounded by a membrane. In the center of the little cell of the white of the egg is the nucleus which represents the vital principle of the egg and contains a modified protoplasm called chromatin, which is one of the most mysterious and wonderful substances in nature.

The chromatin carries the inherited characteristics of the fowl and is the physical basis of all heredity. It is by the fatigueless study of the beginnings that investigators hope to add greatly to the human food supply.

THE MOULT

The moulting period is in point of interest second only to that of early chickhood, and to some indeed it is more important in view of possible shows and prizes. The annual phenomenon of the putting off of the old and putting on of the new is to all observant poultry-keep-

ers a matter of the deepest interest, so suggestive that one might be tempted to moralize over it, so seemingly uncanny and unaccountable that that it fascinates as well as interests.

The blood is life, so the blood must be maintained and reinforced by all the means which science has discovered or experience has taught. Moulting birds are more or less feverish, their temperatures varying from 102 degrees F. to 106 degrees F. This fever is characterized by the blood tending towards the skin, caused by the irritation of the dying and feathers. This increase of blood to the surface and its accelerated circulation around the feather sockets assists the casting off of the old and conveys the materials for the formation of the new feathers. At this time there is a desire on the part of hens for certain kinds of food and mineral matter to repair the wastings. Nitrogenous feeding stuffs must bulk largest in the food given. Middlings and bean or pea meal are most useful for the mash, and wheat or oats for grain. A little Epsom salts is often of advantage at the starting of the moult, and later on Douglas's mixture added to the soft food is advisable. Lean meat or green cut bone should be supplied thrice a week to maintain the strength. A little linseed meal on alternate mornings is also beneficial. Green food is most necessary, and should be given ad lib., especially that which is dark in color as it contains more sulphur. Sulphur itself is often of service when given judiciously, as it sometimes disagrees with certain subjects. Good sharp grit is, of course, a necessity, and it is improved by mixing charcoal with it. Where charcoal is not available, coal or wood ashes should be scattered about the runs, as they supply potash salt, so necessary at this time. Have a care that the dust bath is clean and easily accessible, and sprinkle some insect powder in it now and then.

Separate the moulters from the laying stock, house them in well-aired quarters free from draughts, feed them well, "be good to them," and shield them from cold winds and rains during the day. All this means trouble, but it is more than repaid when our feathered friends

make a good moult, and appear transformed in their dazzling, new plumage.—Poultry (Eng.)

FORCING THE MOULTING SEASON

An interesting experiment has been recently conducted at the Agricultural College, Guelph, Canada, with a view to testing the claim made by some poultrymen that, by certain methods of feeding, fowls can be induced to moult early in the season, and have a full new set of feathers by September, and thus be ready to start laying while eggs are scarce.

The results of this experiment would seem to indicate that it is possible to control the moulting period more or less. It might be that the first week in July is too early to undertake work of this kind. A few of the hens that moulted first began laying in September, and moulted a second time in November. This, of course, is a very serious objection. Whether there is anything to be gained by forcing the hens to moult early in the season would depend entirely upon local conditions, such as markets, and so forth. If eggs were as high as they have been this season it is extremely doubtful if it would pay better to have hens moult than to have them produce eggs.

How to Buy Poultry Wire

Poultry and rabbit fencing is furnished in a number of different designs by the manufacturers, but the kind most generally used is known as hexagon poultry netting. This is usually made in two different grades by the manu-

PRACTICAL HEN SENSE

That's what you get in Poultry Culture. Every issue contains boiled down facts by "people who know"—real experience, plain and terse. Anyone can understand and apply it. No paper has as much real, useable information, ideas, systems and plans that you can apply in your work, as

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Edited by Reese V. Hicks, member of the executive board of the American Poultry Association, assisted by Russel F. Palmer a well known writer and judge, besides a large crop of "real chicken farmers." For the next few months we make a special one-half price offer of only

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facturers. One grade is galvanized after fabricating or weaving the mesh; the other grade is made from about 20-gauge wire previously galvanized. It is safe to say that the second grade is not fit to use, and should never be purchased by anyone who desires to build a lasting structure. If first cost is a great consideration it would be wiser to make the poultry runs smaller and select the better grades of wire. It is easy to distinguish between these two grades of poultry netting, as that which is woven of wire previously galvanized will readily untwist, while in the other grade the twist will be found to be stuck together by the zinc coating.

PRESERVING EGGS IN LIME WATER

We have heretofore published, says the N. D. Food Bulletin, the method of preserving eggs by means of waterglass, and some have asked with regard to the method of preserving eggs by means of lime water. From an exchange we give the following method:

"To each pailful of water add two quarts of fresh slacked lime and one pint common salt. Mix well. Fill your barrel half full with this fluid, and put your eggs down in it any time after June."

How Should Eggs Be Sold?

This is not a question whether eggs which are sold should be fresh or stale. There is but one answer, for all eggs purchased are "Fresh"—that is the average dealer says so. But the problem which is now the subject of much discussion in the city of New York is whether eggs should be sold by the dozen or by the pound. According to a recent official interpretation of the law, it is claimed that eggs must be sold in the Metropolis by weight and in support of this contention it is pointed out that the merchants of Cleveland and Denver have voluntarily adopted the plan of selling by the pound. The argument is also supported by a test of two parcels of eggs, each of which contained a dozen eggs, one weighing eighteen ounces as compared with the other's twenty-three ounces, a striking demonstration of the injustice of selling eggs by count. Another point is that stale coldstorage eggs weigh less than fresh ones. This presents a strong case for the sale of eggs by weight, particularly in view of the allegation that dealers frequently cull eggs and make better bargains for the large ones.

On the other hand, New York uses the enormous number of 4,000,000 cases of eggs, each containing thirty dozen, every year. This makes a total of 1,440,000,000. The weighing of so many eggs and the breakage that would result in the process would unquestion-

ably increase the cost of handling, which inevitably would shift to the consumer. One other objection heard is that egg producers can feed hens so as to make eggs heavier, thus beating the customer in another way. Most eggs today are produced as a side line by the farmer, mostly the housewife who has her flock, and it hardly stands to reason that such an unscrupulous method, if there is one, would be adopted.

POULTRY MANURE IS GOOD FOR THE SOIL

To Waste It is to Rob the Soil of Much Value

Hen manure stands at the head of the list in value, except that made by pigeons. Dried pigeon manure runs as high as \$30 a ton.

Fresh hen manure runs in value according to the feed used, from \$4 to \$10 a ton. Sun dried from \$5 to \$9 a ton and air dried from \$9 to \$12 a ton.

Manures, like everything else, may do harm. They cannot do harm, however, when ordinary intelligence is employed in the use of them. All manures should be used in moderate quantities, as it is well known that to get the best results from manures they should be applied often and in small quantities. Too liberal a supply will have a tendency to produce an acid condition in the soil which in turn has somewhat of a deadening effect on the soil. This was noticeable in the old days when farmers put the manure in piles in the fields and allowed the piles to remain a long time till the leaching had completely saturated the soil beneath.

It should be kept in mind that the best results come from a light coat put evenly on the ground after the plowing has been done, and then well worked into the soil with a disc.

Pigeon manure is imported into England from Egypt and the price reaches about \$30 a ton.

When you are dumping hen manure into the river you are dumping much value that would be a blessing on a vast number of farms and the truck gardens. If the large amount of this manure that is collected at some of the great commission houses could be dried and then placed on the market it would certainly pay well. The drying would lessen the freight, and make the product more easy to handle.

The average hen on an average ration produces about 10 cents worth of manure in a year. That will be ten per cent on her price at \$1. This is the lowest estimate where hens have been penned and the excrement analyzed.—Missouri State College.

Harty's Barred Rocks Specials

(Either Cockerel or Pullet Mating)

EGGS \$2 for 13--\$7 for 50. Limited number from special pen \$5 for 15. Bred direct from prize winners at New York and Boston Shows.

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BARRED ROCKS

Choice Stock and Fair Treatment.

ROBERT B. REED

Box 2.

Amenia, N. D.

White Crested Black Polish Chickens, Eggs \$3.50 for 15, Chicks \$7.50 a pair.

J. R. POLLOCK, Casselton, N. D.

Silver Wyandotte Eggs, from Fargo 1, 2 Ribbon birds, \$3.00 per 13. From 300 hen flock, \$3.50 per 100 eggs. Baby chicks from flock, 10 cents each.

WYANDOTTE FARM

Woods, N. Dak.

Partridge Wyandottes

"Hardi-breds," A breed

which combines good laying quality with the finest table quality, to say nothing of unexcelled beauty.

My birds are from the Hadaway flock direct and among them is a son of "Boston". They are blocky, well marked and of trap-nested ancestry.

Some stock for sale at reasonable prices. Eggs: \$3 per 15 or \$5 per 30. Cash with order.

GEO. J. CHILDS, Casselton, N. D.

HAUSMANN POULTRY FARM

Breeders of W. Wyandottes and S. C. W. Leghorns
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EGGS for hatching from 26 leading varieties. Bronze and W. Holland Turkeys, Pekin ducks and chickens. Catalog free. L. GULDEN, OSAKIS, MINN.

MAMMOTH BRONZE TURKEYS

I have a few very fine toms for sale yet.

JOHN F. SIMON, Oberon, N. D.

MAMMOTH BRONZE TURKEYS

from winning stock
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School and Home

THE DEADLY HOUSEFLY

By W. C. Palmer

The housefly can well be called the most dangerous animal in the world. At least it kills more people every year than all other animals taken together. It is small and looks innocent, that however does not stamp it as harmless. The small things are often the most dangerous.

Most people die from diseases caused by bacteria, things so small that it takes the best of microscopes to see them and

fall off into the food, which is a sure way of getting it into our systems and if the body is at all susceptible to the germs the disease will develop. The fly can also carry disease direct to us as when it walks over baby's hands and face, and germs that fall there are apt to find their ways to baby's mouth and then the germs do their work. This is why cholera infantum is so common in the summer as this is fly time.

When wolves take a few sheep a hue and cry is raised and they are hunted to death and yet we let the fly which is a hundred times more dangerous live,



"No Flies on Our Home."

it is these that the flies carry and that make them so dangerous. The fly breeds in manure and filth and loves to wallow in them so that it is always from the very first covered with bacteria and often times with dangerous ones, if it has a chance to get where they are. Thus if there are any disease germs about they will be sure to have been in them and especially those of typhoid fever, cholera infantum and tuberculosis. If the fly would confine itself to filth and dirt it would be all right as we avoid these but it also likes to get into the kitchen and walk on the food. In doing so some of the germs that are on it

let it walk over our food, over baby's face and hands, and it kills a hundred babies and human beings for every sheep that a wolf or coyote kills and we don't do a thing but take it as a matter of fact. Why not take action? The American Civic Association of Washington has a Fly Fighting Committee which has sent out the suggestions given below as to how to lessen the number of flies.

"The housefly breeds in horse-manure, kitchen offal, and the like. Dispose of these in such a way that the fly cannot propagate.

"Screen all windows and doors and insist that your grocer, butcher, baker,

and every one from whom you buy food-stuffs does the same.

"There is more health in a well-screened house than in many a doctor's visit.

"After you have cleaned up your own premises inspect the neighborhood for fly-breeding places. Call the attention of the owner to them and if he does not remove them, complain to the board of health.

"Not less than 95% of the pests are bred in the stable.

"All stables should have a manure-bin with a door at the side and a wire screen on the top, that the larva deposited in the manure before it was placed in the bin will be screened when hatched, and as flies seek light and come to the top of the bin they can be easily killed by burning paper or some other device.

"The fly has a thirst equaled only by his hunger; place a dish of poisoned water in the stable and a greater part of the flies hatched there will be killed.

"Wherever absolute cleanliness prevails there will be no flies. Look after the garbage cans. See that they are cleaned, sprinkled with lime or kerosene oil and closely covered.

"Remove all manure from stables every three or four days, and when removed keep in a tight pit or vault, so flies cannot breed in it. Lye, chloride of lime, or blue vitriol water, crude carbolic acid, or any kind of disinfectant may be used.

"To clear rooms of flies carbolic acid may be used as follows: Heat a shovel or any similar article and drop thereon twenty drops of carbolic acid. The vapor kills the flies.

"A cheap and perfectly reliable fly-poison, one which is not dangerous to human life, is bichromate of potash in solution. Dissolve one dram, which can be bought at any drug-store, in two ounces of water, and add a little sugar. Put some of this solution in shallow dishes, and distribute them about the house.

"A spoonful of formalin or formaldehyde in water, put into a quarter of a pint of water and exposed in the room, will be enough to kill all the flies.

"To quickly clear the room where there are many flies, burn pyrethrum powder in the room. This stupefies the flies and they may be swept up and burned.

"If there are flies in the dining room of your hotel, restaurant, or boarding house, complain to the proprietor that the premises are not clean."

Everyone who values his life or that of his neighbors should make a careful study of this. Cut it out and paste it up where it can be read every day, and practice what it advises. This will not be as fascinating as hunting wolves but it will result in more good. It will take

concerted action to make the work effective as in the wolf hunt. Every town ought to have a fly fighting brigade and to be most effective it should be composed of everybody in the town or city.

FORMS FOR CONCRETE

Schemes for Saving Time, Labor and Lumber

Since freshly mixed concrete is a plastic material, forms of some kind are necessary to hold it in place and in shape until the cement sets up and the concrete becomes hard. Lumber, tho expensive, is the material most commonly used. By exercising his natural ingenuity and customary care in the matter of construction of forms, the farmer has built so cheaply of concrete that his cost statements are frequently doubted by the builder in the city.

Much of the work done on the farm requires almost no forms at all. In this class are walks, floors in buildings, and feeding floors.

Forms Must be Tight

The first requisite of good forms is that they should be tight so that the liquid cement may not run out between the cracks, cause pockets or hollows and thus ruin the looks of the work as well as decrease its strength. Consequently boards are most desirable unless one chooses to fill gaping cracks with stiff clay and tack strips over them. Dressed lumber is usually straightest and yields a neater finish to the concrete. But for ordinary purposes rough lumber is sufficiently good. Naturally the siding must be stiff enough not to bulge out of shape when the forms are first filled with concrete. This does not mean that very heavy siding is necessary. In fact one-inch boards are usually sufficiently strong. The bulging may be prevented by setting two by four-inch studding from 20 to 30 inches apart according to the thickness of siding boards or sheathing used.

The Primary Principle—Save Lumber

The thoughtless cutting of boards into short lengths means a waste of lumber and a useless increase in the cost of concrete. Unnecessary nailing not only calls for more nails but adds to the difficulty of removing and the danger of splitting and ruining the boards. The reason that concrete is so unusually cheap for the farmer is that he plans his forms to spoil as little lumber as possible and he finds a use for all of the lumber after it has served to hold the concrete in place. In this way the material for forms costs practically nothing.

Little Saving Devices

Most concrete work on the farm is built in what is known as the box form, which, with variations, consists of one box within another between which the

concrete walls are molded. Such forms are used especially for walls of buildings, tanks and troughs. Ordinarily the studding need not be cut in lengths equal to the height of the wall: it may without inconvenience be allowed to project above the top of the siding. Nor does it need to be sharpened (and later battered up at the other end) for driving into the ground. There is a quicker, easier and cheaper way. Set the ends of the studding on the ground and hold them in their proper position by a timber, called a liner, lying on the ground against them; or "toe-nail" the ends of the studding to a plate which will serve the same purpose. Stakes driven into the ground and against the plates or liners will fix them firmly in place. The studding may be held plumb by bracing

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it with odds and ends running from the top to stakes driven into the ground a few feet away from the form. If the forms are so high and will be filled so rapidly as to render possible the springing of the studding, tie the opposite pieces together by means of bailing or other pliable wire passed thru the joints in the siding. Space the forms at the top by means of cross cleats.

For the outside wall of box forms boards of full length need not be cut at all. The extra length may be allowed to extend beyond the corners. This saving can not always be effected with the inner wall, yet odd pieces of boards may often be used in such a way as to prevent useless cutting. In nailing on the siding, arrange the boards so that all end joints will not be made on the same upright. If the lumber is crooked, draw the boards together so as to prevent cracks. Since the siding is generally between the studding and the concrete, heavy nailing is not needed to hold it in place until the concrete comes against it. Often cleats, clamps, or screws are used to save the lumber and to render easier the removal of the forms. The forms should always be planned with this end in view. In placing the concrete avoid unnecessary lifting by leaving off a few of the boards at the top of the form until they are needed. However, if chips or blocks fall inside the forms, carefully remove them before proceeding with the work.

See that the forms are lined up properly before beginning to fill them as they must not be disturbed after the concrete is in place.

How to Clean Forms for Concrete

If new forms are wet, before the concrete is placed, and allowed to remain in position until it has thoroly set, bits of concrete will seldom stick to them. For very particular work, or where forms are to be used more than once, it is advisable to coat them, previous to erection, with soft soap or oil. Linseed, black or cylinder oil is suitable, but kerosene is not good. Upon taking down the forms immediately clean off all bits of concrete clinging to them. For this purpose a short-handled hoe is convenient, but it must be used with care so as not to gouge the wood.

The Placing and Protection of Concrete

All other things being equal, the strength of concrete is dependent upon its density or compactness. Where possible, the easiest way to render concrete dense is by mixing and placing it wet. For very wet concrete the forms must be tight so that the liquid cement cannot escape. To give a neat finish to the surfaces, which will later be exposed, force the larger stones back from the outside by running a straight spade or a wooden paddle down in the concrete

next to the wall forms and working it back and forth.

It frequently happens that very wet concrete cannot be used. To make a drier mix dense and strong, tamp or ram it into place with a heavy wooden or iron tamper.

In a way, the successful making of hay and concrete are very much alike—both must be well cured. Exposed surfaces of freshly placed concrete should be shaded to protect them from rain, dust and the hot rays of the sun. Freezing injures freshly placed concrete. Hot water and salt are sometimes used to

counteract the frost action; but, on the whole, it is better to attempt no outside work in winter. During the early months of spring and fall see that no frozen sand, gravel or rock is used in the work. In summer ordinary forms, for walls supporting no loads, may be removed after the concrete is 3 days old, but in cooler weather they should not be touched short of 5 days.

It is the attention to the details which makes farming or any business a success. The same principle holds true of concrete work.

FROM THE NATION'S CAPITOL

By GUY E. MITCHELL

FLY WARFARE GENERAL

From the mail received by the Department of Agriculture, it is apparent that the interest taken in the anti-fly campaign is widespread and world-wide, some of the communications coming from foreign countries saying that the work of fly eradication is being taken up and the disease-carrying abilities of the house fly are receiving official attention. All of these endorse the stand taken by the Department that the common house fly is the most potent carrier of typhoid and many of the other germ diseases.

One communication, that from Dora Davis of the American Missionary School at Levetch, Bulgaria, gave a suggestion that may be of interest to many fly-suffering families in this country, especially those in the rural districts, where conditions prohibit the use of screens. In her letter she says that hop vines answer all the purposes of screens, that the vines are perennials and rapid growers and that the people in Bulgaria succeed in protecting the kitchen and dining room of the house in that way and are not troubled with flies.

In commenting on this letter, Dr. L. O. Howard, chief of the Bureau of Entomology, stated that this plan is very simple, and that while he had never heard of it, it is interesting and easily tried.

"It is remarkable to me," said the Doctor, "that the anti-fly propaganda has sprung so suddenly and generally into favor. I have been talking and writing against the typhoid fly for the past ten years and it is only in the past summer that the subject seems to have suddenly taken hold of the people. We are getting letters and clippings daily from all over the country, and there is hardly a state where there is not now an active anti-fly campaign."

Free Rides for School Children

Kentucky seems to have adopted a plan whereby education in the rural districts is bound to receive an impetus that will be far-reaching and most effective. Under this proposition children in the outlying districts receive free transportation between their scattered homes and the school house. The cost of this method has been met out of the county treasuries and while the legality of the expenditure was disputed and carried to the Court of Appeals, the decision upheld the plan. In the case thus decided, several schools in one county had consolidated and had established a system of free carriage of pupils between their homes and the single school. This plan was adopted for the express purpose of decreasing illiteracy among the children of white farmers, not "po' white trash," but tillers of the soil, taxpayers and good citizens whose environment tended toward isolation.

This step seems to be a sound public policy, as important in its specific nature as is the rural free delivery to the nation. As commented upon by a man of public note; it is as much a public province to carry children to school as to transport prisoners to jail, and the more that is done of the former, the less may be the expense for the latter. The greater the attendance at the public schools, the shorter the dockets of the criminal courts.

Has it yet been figured out that there should be some shelter provided for the farm implements that have done faithful service during the present season, or is it contemplated that "seasoning" in the winter rains and snows will be good for them and put on them that "ancient" appearance so much desired. Of course broken pieces due to rust and corrosion next spring can be easily

remedied and the outlay will not be so expensive as the construction of an implement shed.

Vegetable Seed Growing as a Business

While in early times most of the garden seed produced in America was grown by seed merchants, now the growing of seeds and their marketing are quite as distinct as the manufacture and sale of other merchandise. The growth of the industry has been most remarkable.

Some seeds are secured from canneries and from truckers' crops, which could not profitably be sold in the green state, but the larger portion of the supply is grown by farmers under special contract with seedsmen. These contracts differ from those for the manufacture or delivery of most merchandise, because of the possibility that weather and other conditions may prevent their fulfillment. The farmer is cautioned by the Department of Agriculture against devoting his whole farm to seed growing and advises him to restrict his contract to the growing of a limited acreage. If he finds that his conditions enable him to produce certain vegetable seeds of such superior quality that they will command remunerative prices, he might make vegetable-seed growing a very profitable and satisfactory part of his regular farm operations.

Many cases are known where of two crops of the same seed grown on adjacent farms and which up to the time of harvest were equally promising, one gave a good return of seed which was clean, highly vital, and satisfactory to both farmer and seedsmen, while the other crop, solely because of careless handling, was so discolored and lacking in vitality that it was unfit and worthless for seedsmen's use, though it might bring as much as the other if both were sold as grain.

Probable Wheat Supply 40 Years Hence

The average yield per acre of wheat has increased from 12.31 bushels in the decade which ended with 1878 to 13.75 bushels during that ended with 1908. During the period from 1850 to 1900 the total acreage in farms increased from 293,560,614 to 838,591,774, while the acreage of improved lands increased from 113,032,614 to 414,498,487; between 1870 and 1900, the percentage of the total land area of the United States devoted to wheat growing increased from 1 to 2.2. The present wheat acreage appears to be approximately less than in 1870, yet as outlined above, the average yield has increased.

According to estimates prepared by the Department of Agriculture, it is believed that a yield of 1,600,000,000

bushels may be expected in this country in 1950, of which 1,400,000,000 bushels may be required for home consumption. While the area devoted to wheat growing should increase from 4.4 per cent of the farming area, to more than 6 per cent. Production in foreign countries is expected to keep pace with the increase in population in these countries.

Heat Increases Soil Fertility

Foreign investigators have found quite recently that the fertility of the soil can be greatly increased by heating or by treatment with volatile antiseptics. It was observed many years ago that treatment of vineyard soils with carbon bisulphid for the purpose of destroying phylloxera resulted in an increased productiveness which could not be entirely accounted for by the destruction of the phylloxera. Dr. G. E. Stone, of the Massachusetts Experiment Station, observed that steaming greenhouse soils to destroy nematodes apparently increased the actual fertility of the soil. More recently Prof. T. L. Lyon and Mr. J. A. Bizzell, of the New York Cornell Experiment Station, have reported experiments showing that while steaming soil under two atmospheres pressure for two to four hours apparently produced substances which were at first injurious to plant growth, a luxuriant growth took place later on the sterilized soil. The subject which is being rigidly investigated in all of its phases has invited attention to certain practices in other countries among agriculturists.

For example it has been suggested that the beneficial effect of the practice of "rab" on rice lands in India, which consists of turning up the soil and exposing it to the action of the intense heat and light of the sun, may be attributed to partial sterilization, and also that the beneficial effect of heating the surface soil by means of intense and long continued fires as practiced in certain parts of England may be attributed to the same cause. If further investigation shall show that such practices as these bring about increased productiveness as a result of partial sterilization, it will go far toward demonstrating the practical utility of the conclusions reached by foreign investigators. Such work suggests a wide field of interesting investigation, not only in connection with the handling of garden and greenhouse soils, but also with regard to the effect of intense light and heat upon the bacterial activities of the soils of the arid regions of the United States under various methods of tillage.

Fattening Lambs

The South Dakota Experiment Station recently made some tests to deter-

mine the value of certain feeds for fattening lambs. Twenty grade lambs, 8 to 10 months of age were divided into 2 lots to compare the value of alfalfa and prairie hay. The grain ration consisted of oats, corn and linseed meal in the proportion of 4 : 4 : 1. The lots were started on 1 pound per head per day of this mixture, and this was increased until they were receiving 2.2 pounds of grain daily. For every pound of grain fed the lambs in the alfalfa lot they consumed 1.3 pounds of hay and made an average daily gain of .51 pounds per head, at a cost of 4.2 cents per pound. For each pound of grain fed the prairie hay lot 1 pound of hay was consumed and an average daily gain was made of .38 pounds per head, at a cost of 5.3 cents per pound. The grain mixture was rated at 1 cent per pound and the hay at 3 cents per pound.

Tenure of Farm Lands

The Conservation Commission appointed during President Roosevelt's administration found that the farms tilled in part or wholly by their owners during the year 1900 were 3,712,408, and those tilled wholly by tenants were 2,024,964. For every 1,000 farm owners, tenants and male workers other than owners and tenants over 15 years of age engaged on farms, there were 417 farm owners, 227 farm tenants, and 256 others, of whom substantially one-half worked for wages or for their parents. It was also found that the relative number of farm owners was greater in 1900 than in 1850; the relative number of tenants was much greater in the later than in the earlier year, and has shown a tendency to uninterrupted increase, while that of the lowest form of farm labor has shown a most marked tendency to decrease in relative importance.

None But Cranks Need Apply

There is one place in Washington where cranks are wanted, and it is not the Government Asylum for the Insane either, but at the Department of Agriculture. As a matter of fact there was a meeting of cranks at the Department this week, and Assistant Secretary Hayes presided, and he had the temerity to tell the men there that they were cranks and they accepted the title cheerfully. Mr. Hayes added that the Department did not want men in their particular line of work unless they were cranks.

This was an unofficial meeting of men who were the sunburned, hard-fisted and alert county and state field agents of the Department who are engaged in the work that Dr. S. A. Knapp calls "carrying the Department of Agriculture to the farmers." There were fifteen or

twenty of them, some specialists in particular lines of farm work and others merely experts who are showing the farmers what can be produced by Government methods. They are the practical field men who form the connecting link between the laboratory scientists of the Department and the farmers of the country who are raising the crops. The field agents are particularly interested just now in corn. Of course as soon as the men got together they began telling stories of their experience.

One in particular was that of a well-to-do Texas farmer who was raising about 30 bushels of corn to the acre, which is considered a good crop in that locality. Two of his sons joined one of the corn clubs and raised eighty bushels to the acre, using what the farmers are getting to know as "government methods." After the crop was harvested the boys began to banter the old man. One of them said:

"Dad, why don't you raise good corn like we do?"

"That's all right," replied the old man. "You stole the most of the barnyard manure. You didn't plant as much as I did, anyhow. No wonder you raised big crops."

"Well, if you had only planted half as much," replied one of the boys, "there would have been manure enough to go round. You would have raised more corn than you did, and you could have put the rest of the land in cowpeas."

"That," said W. F. Proctor of Tyler, Texas, who was telling the yarn, "is the secret of the whole thing—intensive farming. Put twice as much work on half as much land and raise more than twice as big a crop. Take the farmer that is struggling along and making a bare existence, and the tone and surroundings of his family are lowered. Let him make twice as much money, and he not only helps to feed the country, but he is a better man himself and he raises the tone of his family and of his whole community. He is the sort of a man the country wants to fall back on if it ever needs to fight and wants real men."

Good Opportunity to Learn Farming

Announcement is made that a secondary school of agriculture for Vermont boys is to be opened in September in connection with Lyndon Institute, Lyndon, Vermont. A two-year course in scientific and practical agriculture will be given, designed to prepare young men for successful farming. A unique feature of the school is the provision of two methods by which students may pay their expenses, a cash payment system and a work payment system. Boys who choose the latter method will be required to stay at the school throughout

the year and will be allowed \$25 a month with board and lodging during vacation time and 15 cents an hour for work during the school year.

Doctor Wiley Still Firm

Doctor Harvey W. Wiley has been on the witness stand nearly the entire week in the case of the State of Indiana against certain canning and preserving people who are using benzoate of soda as a preservative.

In his testimony Doctor Wiley stated that he has read all the reports of the experiments by the Remsen referee board, which reversed his decision in regard to benzoate of soda, but has not changed his mind in regard to the harmfulness of the preservative. He stated emphatically that notwithstanding the findings of the referee board, he still believes benzoate of soda deleterious to human beings when used as a food preservative. He also expressed his opinion that better work could be done in making tests such as were made with the food preservatives, if the person in charge were in constant and direct communication with his assistants. It was brought out that Doctor Wiley had maintained a very careful supervision of the "poison squad" and his other assistants during the tests. Stress was laid upon this, since it had been brought out earlier in the case that some members of the referee board had been several hundred miles away from the place where the tests were being made for which they were responsible.

Tuberculin Test Upheld

The latest decree on the tuberculin test for meat and dairy cattle is the preliminary report of the International Commission on the Control of Bovine Tuberculosis. This commission was appointed by the American Veterinary Medical Association and it is composed of some of the foremost veterinarians in the United States and Canada, of representatives of the meat and dairy interests, and of cattle raisers of both countries. The commission made an exhaustive study of bovine tuberculosis at four meetings, held at Buffalo, Detroit, Ottawa and Madison, Wisconsin. In the advance sheets of its preliminary report appears this significant statement:

"The commission recognizing, after careful study, that the tuberculin test is the fundamental factor in any policy having for its object the control of bovine tuberculosis, decided that a pronouncement to that effect should properly occupy a foremost place."

Briefly, the commission has decided that the tuberculin test will show whether a cow has tuberculosis. Many

dairymen claim it will not, and they resist the requirement for the test on that ground. Backed by the decision of the international commission, health officers will be able to prosecute their campaigns against tuberculous herds with redoubled energy.

Seeing Plants Grow

"You have seen some of these trick moving pictures in the various little theaters, I presume," said Mr. G. R. Spitznagle, of Minneapolis, who was in the Capital this week. "I don't suppose, tho, that many people know that the Department of Agriculture has engaged in the business of manufacturing these trick pictures. In these trick pictures that all of us have seen, which show the growth of a flower from the moment it emerges from the earth, to its full development, the flower or plant is actually photographed. All the stages of growth passed thru in one of these pictures in five or ten minutes have been recorded by the camera. If the plant is a fast grower a film is exposed each day until it has matured. When the plant develops slowly the exposure may be made possibly one a week. When the plant has attained its full development, the various strips of film are fastened together and run thru the machine at such speed that it seems to sprout, grow up, and put forth its fruit before the eyes of the spectator.

"The Department of Agriculture has a film thus made which is now being shown to Western farmers. It shows two stalks of wheat growing, from the moment they break thru the ground till they reach full height. One of the stalks is from a good seed and the other from a bad one, and the comparative rate of growth and fruitfulness of the two is vividly pictured. This picture, which took the Department months to perfect, can be shown to a spectator within five or ten minutes."

Permitted to Stay One More Month

The news mongers seem to have been quite lenient with Secretary Wilson of the Department of Agriculture, and have permitted him to remain one more month as the head of that Department without once hinting that he intends to resign. News must not be so scarce, for that subject appears to be a fertile field for imagination.

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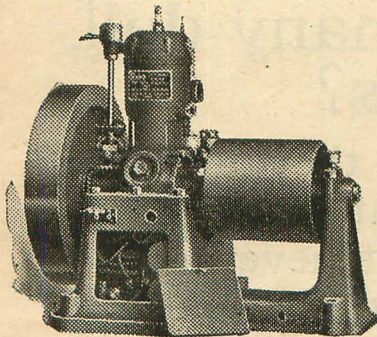
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The best Paint *must* do two things. It must preserve and beautify. Do you know that Linseed Oil is *the* great preservative in Paint and that if it were not for the sake of appearance, you could give your house a coat of pure Linseed Oil, and it would be protected?

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Strictly Pure Zinc absorbs more Oil than any other pigment and that is the reason for its use in Horse Shoe Paint. WHITE LEAD is used for its covering qualities, and ZINC for its *Oil-carrying* capacity.

And Oil-carrying capacity is what your Paint *must have* if your property is to be protected.

Horse Shoe Paint, while it covers and beautifies the surface thoroughly, is made of pigments that carry so much oil, that the *first* coat satisfies the oil-hunger of the wood leaving the second coat to gloss, harden, protect, and beautify.

That's why Mound City Horse Shoe Brand House Paint HOLDS its gloss.

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